THE CHEMIST AND DRUGGIST

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THE MONTH

The development of pharmaceutical education since the passing of the Pharmacy Act nine years ago has never been so evident as at the present moment. Anyone who will turn to our advertisement pages this month will notice the large space occupied by the prospectuses of purely pharmaceutical schools. The success which has attended these enterprises indicates how fully the Pharmacy Act has succeeded in at least one of the intentions of its promoters, and English pharmacy may also be congratulated on the ability and promptitude with which the demand thus created has been met.

We also desire to direct attention to the very full information which, with the courteous assistance of the secretaries of many of our chief medical and scientific schools, we are able to give on many educational subjects. During the year we have frequent queries put to us on matters which are fully answered in this our special Educational number, and we trust those to whom the information is likely to be necessary in the future will put this publication somewhere where it can easily be found.

The somewhat rapid manner in which our report of the Plymouth Pharmaceutical Conference had to be finished last month did not prevent that report from fairly reflecting the character of the session, though of course the limits of our space necessitated considerable condensation. We add to the completeness, however, this month by printing in full the very interesting paper presented by Mr. Edward Smith, which, as will be readily seen, was not suited for condensation, and for which we had not sufficient room last month.

The German and American Pharmaceutical Associations both commenced their annual *séances* on September 4. The German meeting was held at Leipsic; the Americans assembled at Toronto, Canada. At both meetings there was an exhibition of pharmaceutical products.

The Chemists' and Druggists' Trade Association has decided to appear by its solicitor to a writ issued by the Apothecaries' Society against Mr. Henry Wiggins, a chemist, of Bermondsey, for alleged infringement of the Apothecaries Act.

Our botanical competition has not evoked the amount of interest we had hoped. Five specimens were forwarded, and the one to which we have awarded the prize was decidedly above the average. If students fully understood the good to be gained from these competitions, quite independently of the reward offered, we should have had our office filled with specimens. We shall not be disposed to repeat the experiment unless we have a fair prospect of at least twice as many competitors as on this occasion.

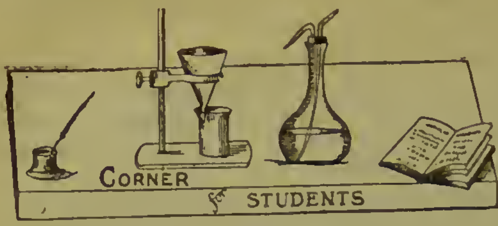
An interesting and novel exhibition of sanitary appliances was held at Manchester on the occasion of the visit of the British Medical Association to that city last month. The collection was large and important, and we have given in this number a summary notice of it.

Castor oil pills have been again attacked, this time at Cannock, Staffordshire. The defendant was a grocer who had been supplied by a firm of wholesale druggists at Wolverhampton. It cost the grocer 14*l.* 9*s.*

A chemist at Rugeley was lately entrapped into selling without a witness some arsenic to a police constable unknown to him. The constable made representations that the arsenic was for an old customer, and he admitted that these representations were false, but said he had been instructed to deceive the chemist by the chief constable. The case was defended by Mr. Glaisyer, the solicitor to the Chemists' and Druggists' Trade Association, who showed that this "dishonest and disgraceful" manner of obtaining information for a prosecution was also illegal. The constable, he said, was liable to a penalty of 20*l.* The magistrates fined the chemist 1*l.* and costs, and on Mr. Glaisyer's application granted a summons against the constable. The case will be heard on the 20th inst., and we hope a full inquiry will bring forward the real author of the trick.

The public analyst for Lewisham recently reported to the Board of Works that a large quantity of treacle had become accidentally mixed with arsenic, and was being extensively sold. The Board adopted the medium policy with regard to saving the peoples' lives or their money, and ordered the purchase of *two* samples of treacle from each parish for the purpose of analysis. May analyst and inspector both be speedy in their work!

We translate from a French journal a rather late report of an International Exhibition of Cinchonas, held at Amsterdam last April. Although nominally international, it was practically confined to the Javan cinchonas. At the same time and place was held an International Congress of Botany and Horticulture, and this report emanates from the Quinological section. M. Planchon, the secretary to the section, is the author of the report, which dwells chiefly on the question of the value of the process of mossing as adopted in the British cinchona plantations in India. The question which the Congress was called on to decide, whether it is advisable to introduce this system into the Javan colonies, was answered in the affirmative. The report includes a clear and elaborate description of the process, which is the invention of Mr. McIvor, scientific director of the Neilgherry plantations.



Conducted by Richard J. Moss, F.C.S.

ONE of the chemical compounds of the Pharmacopœia will form the subject of the next exercise in qualitative analysis. The substance is to be submitted to a systematic analysis, its composition and name ascertained, and a report made as to its purity.

Students who wish to compete should send us their names and addresses before the 20th inst. Samples of the substance will be forwarded on the 25th.

Students' papers will be received up to October 15.

Answers.

The subject of the last exercise was *Ammoniæ Benzoas*, B.P. It was very pure for a commercial article, the only noteworthy impurities being a slight excess of benzoic acid and a trace of chlorine. In the preliminary examination of the powder it was found to be readily volatilised, a very trifling residue remaining. This circumstance, if duly considered, greatly simplified the subsequent examination. When it is remembered that most of the metals form salts, which are either stable at high temperatures, or else are more or less decomposed, leaving a fixed residue, and that only a few metals, such as mercury, arsenic, antimony, and the radical ammonium, yield compounds that are readily volatilised, it is evident that the search for the metallic radical is reduced to a very simple operation. Many of our correspondents did not fully appreciate the value of this one experiment, which disposed at once of a very large number of the substances that they had to seek for. The experiment showed that the alkali metals (excluding ammonium) were absent, that the alkali earth metals were also absent, and nickel, cobalt, iron, manganese, zinc, chromium, aluminium, bismuth, copper, cadmium, and tin were disposed of, for these metals could not be present in a substance so easily volatilised. If any of those metals existed in the substance under examination they were to be found in the residue that remained after the volatilisation, and this was so minute that it was quite evident only the smallest trace of fixed matter was present: to determine the composition of the residue a large quantity of the ammonium benzoate should be employed.

The reports received on this analysis show that several students employ reagents and filter paper which are not sufficiently pure to ensure accuracy. This is a difficulty that is not easily met, but any error that arises from this source is detected by conducting a blank analysis, the operations of which ought to correspond as closely as possible with those of the actual analysis. If the hydrochloric acid employed contains iron, or if the filter paper contains calcium, these substances will be detected in both analyses, and the relative quantities may be roughly compared.

Some of our correspondents require to be reminded that the value of their report does not depend upon the quantity of paper they cover. Half a sheet of foolscap paper is quite sufficient for a complete account of an analysis if the work is systematically conducted and the results carefully tabulated.

Prizes.

The First Prize, for the best analysis and report, has been awarded to W. Marson, 53 Gungate Street, Stafford.

The Second Prize has been awarded to C. J. Bennett, 14 Waterloo Road, Widnes.

Marks awarded for Analyses.

W. Marson (1st prize)	95
C. J. Bennett (2nd prize)	92
Blowpipe	90
J. P. Harold	90
Frederic	90
H. J. Jackson	90
Excelsior	88
Sclav	88
Scintilla	85
W. Buckley	85
Dolomite	85
Purus	80
Potass. Iodid.	80
Eucalyptus	80
Student	80
S. A. R.	80
W. H. B.	75
Carbonas	75
Orpiment	50
Alpha	20
Cymro	20
Hocum Pocum	0

TO CORRESPONDENTS.

⁂ All Communications should include the names and addresses of the writers.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as a second prize.

Frederic. It is usually best, after the preliminary examination, to proceed to the detection of the basylous radical, as the search for the acidulous radicals, which cannot be so systematically conducted, is then greatly simplified.

Purus.—The trifling impurities which you failed to detect are, of course, unimportant, except as a test of the care and skill with which the analysis is made.

Potass. Iodid. Filter paper is usually purified by allowing it to steep for a day or two in dilute hydrochloric acid, and then washing with distilled water until the washings cease to indicate chlorine when tested with silver nitrate solution. We could not detect the odour of benzoyl hydride when the substance was treated with sulphuric acid. Possibly you have mistaken the faint odour of benzoic acid for that of oil of bitter almonds.

S. A. R.—We tried the experiment from which you concluded that citric acid was present: the solution did not give a precipitate with calcium chloride, either before or after neutralisation.

Orpiment. We could not obtain the succinic acid reaction to which you refer, and cannot account for your results.

Alpha.—You entirely omitted to examine the substance for ammonia.

Cymro.—We have before pointed out that potassium or sodium hydrat are not the best reagents to employ in testing for ammonia. Solid calcium hydrate is a much better reagent. It should be mixed with the solid under examination, and then moistened with water sufficiently to make it into a thick paste. The less water there is present the less ammonia is dissolved in it, and therefore ammonia is more easily detected than when much water is employed.

Hocum Pocum.—A mixture of ammonium phosphate and zinc sulphate would produce insoluble zinc phosphate if you attempted to dissolve it in water. Your report was so imperfect that it would be impossible to point out the sources of your errors.

Homœopathic Soup.—Take two starved pigeons, hang them by a string in the kitchen window, so that the sun will cast the shadow of the pigeons into an iron pot already on the fire, and which will hold ten gallons of water; boil the shadows over a slow fire for ten hours, and then give the patient one drop in a glass of water every ten days.

BOTANICAL CONTEST.

OUR offer of Hanbury's "Pharmacographia" as a prize for botanical students has only elicited five replies. Of these only two have fully grasped the meaning of our announcement. The points for illustration were to be the characters of the order Scrophulariaceæ, *per se*; its characters as contrasted with its allies; and its characters as contrasted with the other great classes of plants. In other words, the characters of the sub-orders, the order, the sub-class Corollifloræ, and the class Dicotyledons. Three of the competitors confined their attention solely to the characters of the order. Another only illustrated the characters of the order, sub-class, and class, so that, although his specimen exhibits considerable care in preservation and mounting, and shows him to have a thorough knowledge of the subject, he must give place to the gentleman to whom we have awarded the prize. The prize-taker has fallen slightly into the error of proving too much. He tells us that the embryo of Scrophulariaceæ is dicotyledonous, but only exhibits entire seeds of the Snapdragon. Therefore, as the point is not illustrated, we cannot give him credit for it, although he is the only one that mentions it. Ripe seeds of many plants belonging to this natural order could have been easily obtained at the date of our last issue, and if sown at once would have germinated very quickly. We must say that we hoped to have had some specimens sent, accompanied with one or more seedlings illustrating the dicotyledonous character of the order. No specimen of any plant is complete unless it have a seedling and one or more germinating seeds in different stages of existence. None of the specimens come *quite* up to our standard of excellence in mounting, but as this is entirely a matter of taste, and the prize specimens are very nearly perfect, we will only mention one point in which they may be improved. We very much dislike to see a broad band of paper stretching across a leaf, and extending over the mount for some distance on each side of the specimen. The breadth of the strip used to fasten down the specimen may be much reduced by using a very strong good paper and the unsightly protuberances on each side may be put out of sight by cutting a slit in the mount with a sharp fine knife, slipping the binders through them, and gumming them down at the back of the paper or card. This gives the specimen a much neater appearance. A further advantage is, that in fastening down a large leaf like that of the foxglove there is no need to carry the binder across the whole of the leaf; a slit may be made on each side of the midrib and the binder carried through the substance of the leaf as well as the mount, and fastened behind. The prize specimen contains parts of the following plants:—Bartsia odontites (Huds.), Digitalis purpurea, Verbascum Thapsus, Calceolaria, Veronica Chamædrys, Rhinanthus Crista-galli, Antirrhinum majus, Linaria vulgaris, L. spuria, and Scrophularia aquatica. The second and third are taken from Digitalis purpurea, the fourth from D. purpurea and Antirrhinum majus, the fifth from the latter alone.

Allowing 100 as the maximum marks, the following is the order of merit of the competitors:—

David Hooper, 119 Fitzroy Street, Cambridge ..	85
A. E. Lomax, Birkenhead	70
Leonard Doflin, Belfast	54
Vincere	45
Inflor.	30

GRIEF has fallen on a Lille pharmacien in a way which shows how strictly matters are managed in France. He had to make up for a consumptive patient a prescription containing phosphate of lime and the peel of bitter oranges, but was unfortunately short of these articles. He was in the act of replacing them by cod liver oil and a syrup of bark, when two inspectors happened to step in. The outcome of the affair was a summons, a fine of 2*l.* 10*s.*, and an order that he should advertise the conviction in three newspapers.—*Medical Examiner.*

The Chemists' and Druggists' Trade Association.

MEETING OF LAW COMMITTEE.

A MEETING of the Law Committee was held at the office of the association, 23 Burlington Chambers, New Street, Birmingham, on September 3, 1877, at 1 P.M., Mr. S. U. Jones (Leamington), President, in the chair. Present:—Messrs. Barclay (Birmingham), Churchill (Birmingham), Hampson (London), Holdsworth (Birmingham), Jervis (Sheffield), and the solicitor of the association.

The minutes of the previous meeting of the committee were read and approved.

The SECRETARY read communications from Messrs. Flux & Co., the solicitors of the Pharmaceutical Society, and from the Registrar of that society, respecting cases of infringements of the Pharmacy Act.

The SECRETARY stated that a writ issued out of the Exchequer Division of the High Court of Justice for the sum of 40*l.* had been served upon Mr. Henry Wiggins, 236 Blue Anchor Road, Bermondsey, London, S.E., a registered chemist and druggist, a member of the association and of the Pharmaceutical Society. The plaintiffs were the Apothecaries' Company, and the amount claimed was for penalties incurred by the defendant for alleged infringements of the Apothecaries Act, 1815.

The PRESIDENT inquired if Mr. Wiggins, being a member of the Pharmaceutical Society, had informed the secretary of that society that proceedings had been taken against him.

The SECRETARY said, immediately he received the information from Mr. Wiggins he requested him by letter to at once communicate with the Pharmaceutical Society and solicit their assistance, as the last day for entering an appearance to the writ would be the 5th instant. He did not know the nature of the reply Mr. Wiggins had received from the society, but he had thought it best for him to have a personal interview with the members of the committee, and he had requested him to attend that meeting.

Mr. WIGGINS then waited on the committee, when his case was fully discussed. In reply to a question from the President he said he had informed the secretary of the Pharmaceutical Society that a writ had been served on him by the Apothecaries' Company, but up to that date he had received no acknowledgment of his letter.

Mr. Wiggin then withdrew.

Some further discussion then took place, when it was moved by the PRESIDENT, seconded by Mr. JERVOIS, and unanimously resolved:—

> That the solicitor be instructed to appear to the writ issued by the Apothecaries' Company out of the Exchequer Division of the High Court of Justice against Mr. Henry Wiggins, 238 Blue Anchor Road, Bermondsey, London, S.E.

The SECRETARY said he had received communications from members residing in London, Sheffield, Manchester, Blackburn, Chesterfield, Kogworth, Denton, Kirkby-Stephen, Halifax, Bury, Heywood, Rochdale, Attleborough, Sherborne, Kidsgrove, Middlesborough, Stockton-on-Tees, Chester, &c., reporting cases of illegal trading under the Pharmacy Act, 1868, in some instances strongly protesting against the seeming inactivity of the association in taking prompt steps to suppress such infringements of the Act. He (the Secretary) thought the time had arrived for the association to distinctly inform its members that where scheduled poisons were being sold by unregistered persons, labelled in accordance with the provisions of the Act, the association was totally unable to take proceedings against the vendors, as the power to sue in such cases was, by the Act, vested in the Registrar of the Pharmaceutical Society.

Mr. BARCLAY said proceedings could be taken by the association against unregistered persons selling scheduled poisons not properly labelled, and he would move:—

> That evidence having been brought before this committee that scheduled poisons are still being largely sold by unregistered persons, this committee considers it desirable that proceedings should be instituted, and it empowers the solicitor to take action under section 17 of the Pharmacy Act, 1868, in such cases as he thinks expedient.

Mr. HAMPSON seconded this resolution, which was carried unanimously.

Educational Information.

IN giving particulars concerning pharmaceutical and medical education we show first the requirements of the various bodies to which are entrusted the power of granting diplomas, and afterwards we give some particulars of the schools which especially furnish the instruction required.

PHARMACEUTICAL DIPLOMAS.

The right to practise as a chemist and druggist in Great Britain is, by the Pharmacy Act of 1868, restricted to such candidates as pass (*a*) the Preliminary Examination, and (*b*) the Minor Examination of the Pharmaceutical Society. The Major Examination is purely honorary, and on passing it the title of Pharmaceutical Chemist is obtained. Unlike the practice in medical examining bodies, no special curriculum of study is stipulated, candidates obtaining their knowledge how and where they please. Candidates for the Minor Examination must, however, produce certificates of having attained the age of 21 years; and also to the effect that for three years they have been registered and employed as apprentices or students, or have otherwise for three years been practically engaged in the translation and dispensing of prescriptions. The following are the

Regulations of the Board of Examiners for the Examination and Registration of Pharmaceutical Chemists, Chemists and Druggists, and Apprentices or Students.

In accordance with the Pharmacy Acts, 15 & 16 Vict. cap. 56; 31 & 32 Vict. cap. 121; and 32 & 33 Vict. cap. 117.

THE FIRST OR PRELIMINARY EXAMINATION.*

(For Registration as "Apprentices" or "Students.")

This Examination is held throughout Great Britain on the first Mondays in January, April, July, and October in every year. Candidates for this examination must give not less than *fourteen* clear days' notice.

The examination is a written one, and comprises—

Latin,—translation into English of a paragraph from the first book of Cæsar ("De Bello Gallico").

Latin Grammar.

English Grammar, Composition.

The first four rules of Arithmetic, Simple and Compound, Vulgar Fractions and Decimals, and a thorough knowledge of the British and Metrical systems of Weights and Measures.

In the case of candidates residing in the country and unable to attend in London or Edinburgh, the Registrar shall send the questions, under seal, to the person appointed to superintend the writing of the answers, with instructions that they be opened by him in the presence of the candidates, who shall write the answers forthwith in his presence in a given time. The questions are prepared and reported upon by the College of Preceptors.

The Board of Examiners in London meets for conducting the Minor and Major Examinations in February, April, June, July, October and December. Candidates must give notice to the Registrar of their intention to present themselves, and pay the fee, on or before the first day of the month in which the examinations are held. A registrar's certificate of birth must be produced by each candidate at the time of giving notice. Secretary and Registrar, Elias Bremridge, 17 Bloomsbury Square, London, W.C.

The Board of Examiners in Edinburgh meets for the Major, Minor, and Modified Examinations as often as required. *Fourteen* days' notice is necessary. A registrar's certificate of birth must be produced by each candidate at the time of giving notice. The dates of meetings are announced in the *Pharmaceutical Journal*. Secretary to the Board in Edinburgh, John Mackay, 119 George Street, Edinburgh.

MINOR EXAMINATION.

(For Registration under the Pharmacy Act, 1868, as "Chemists and Druggists.")

Candidates for this examination must have passed the First or Preliminary Examination.

The following form the subjects of examination:—

Prescriptions.—The candidate is required to read without abbreviation autograph prescriptions; translate them into English; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology; also to render in good Latin ordinary prescriptions written in English.

Practical Dispensing.—To weigh, measure, and compound medicines; write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package.

Pharmacy.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well-marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients and possess a *practical* knowledge of the processes, and the principles of the processes, by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

Materia Medica.—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the natural families to which they belong; name the countries and sources from which they are obtained, the officinal preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

Botany.—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

Chemistry.—To recognise the ordinary chemicals used in medicine. To possess a *practical* knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equations or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy, and a *practical* knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining thereto, and the physical and chemical constitution of the atmosphere.

MAJOR EXAMINATION.

(For Registration as "Pharmaceutical Chemists" under the Pharmacy Act, 1852.)

Candidates for this examination must have passed the Minor Examination at least three months previously.

Materia Medica.—This comprises a *practical* knowledge of the methods of estimating the value of important drugs, of obtaining their active proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Botany.—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnæan and De Candolle's systems. The candidate must be able to distinguish practically between each of the following natural orders:—Ranunculaceæ, Papaveraceæ, Cruciferæ, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbelliferæ, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atropaceæ, Labiatæ, Scrophulariaceæ, Polygonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Graminaceæ; and refer to their respective orders such specimens as may be shown to him.

Chemistry.—This comprehends an intimate knowledge of the laws of chemical philosophy, a *practical* knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equations; also the *qualitative* analysis of the more important chemicals, *e.g.*, Nitrates, Chlorides, Carbonates, Sulphates, Phosphates, Oxalates, Tartrates, &c., and the detection of impurities in them, and the *volumetric* estimation of the strength of all Pharmacopœia preparations in which standard solutions are ordered to be used.

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* Certificates of having passed the Local Examinations of the Universities of Oxford, Cambridge, or Durham, the Examination of the College of Preceptors, or those of any legally constituted Examining Body previously approved by the Council, *provided Latin and Arithmetic be included in the subjects*, are accepted in lieu of this examination.

An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

If a candidate fail to pass either of the examinations, the fee will be returned, less one guinea, but he will be admitted to a subsequent examination, after an interval of three months, on giving the usual notice and payment of the full fee.

Examination or Registration Fees and Subscriptions to the Society.

Fees.	£	s.	d.	Annual Subscriptions on becoming connected with the Society.	£	s.	d.
First or Preliminary (Registered as Apprentices or Students)	2	2	0	Eligible, on application to the Council, to be elected Apprentices or Students of the Society	0	10	6
Minor (Registered as Chemists and Druggists)	3	3	0	Eligible, on application to the Council, to be elected Associates of the Society	0	10	6
Major (Registered as Pharmaceutical Chemists) ..	5	5	0	Eligible, on application to the Council, to be elected Members of the Society	1	1	0
				Or a Life Member's Commutation Fee of Twenty Guineas.			

Chemists and Druggists in business before August 1, 1868, and registered as such, on being elected Members of the Society, pay an Entrance Fee of	£2	2	0			
And Subscription for the current year	1	1	0			
				£3	3	0

Council Examination Prizes.

Pharmaceutical chemists who were associates of the Society at the time of passing the Major Examination, will be entitled to compete for the following prizes at the end of the session, in the month of July, in which they passed the Major Examination:—

First Prize.—Pereira Medal in silver, and a present of books value 5*l.*, or thereabouts, given by Mr. T. H. Hills.

Second Prize.—The Pharmaceutical Society's Medal in silver, and a present of books value 3*l.*, or thereabouts, given by Mr. T. H. Hills.

Third Prize.—The Pharmaceutical Society's Medal in bronze, and a present of books value 2*l.*, or thereabouts, given by Mr. T. H. Hills.

Subjects of Examination.—Materia Medica; Botany; and Chemistry.

PHARMACEUTICAL SOCIETY OF IRELAND.

At present only one qualification—that of Pharmaceutical Chemist—is recognised by the council. Women are admitted to examination under the same limitations as men. Licentiates of the Apothecaries' Hall of Ireland may be registered as pharmaceutical chemists without examination on payment of three guineas. The members' subscription is one guinea per annum, or a life composition of ten guineas.

The following are the regulations for candidates for the qualification of Pharmaceutical Chemist:—

Preliminary Examination.

Latin.—To translate into English, and parse, one or more sentences from a Latin author:—Cæsar's "Commentaries," First Book; or Virgil's "Æneid," First Book.

English.—To write on a subject selected by the examiner, and to write from dictation.

Arithmetic.—The first four rules, simple proportion and decimals. To describe the weights and measures of the Pharmacopœia, and of the metric system.

The Rudiments of Chemistry and Botany.—(See Roscoe's "Chemistry"—Science Primers, and Brown's "Botany"—Elementary Science Manuals).

Candidates presenting themselves for this examination must not be under sixteen years of age.

The fee for this examination will be 2*l.* 2*s.*

In case of rejection, 10*s.* 6*d.* to be retained for examination fees.

A rejected candidate may present himself for examination after a lapse of three months.

Preliminary examinations are held on the first Monday of January, April, July, and October.

Pharmaceutical Examination.

Candidates presenting themselves for this examination must be twenty-one years of age, and have passed the Preliminary examination at least one year previously.

Candidates must also have been practically engaged in compounding and dispensing for at least two years, under the instruction of a pharmaceutical chemist or apothecary.

Examinations are held on the first Wednesday of January, April, July, and October.

Botany.—To recognise the principal indigenous plants used in medicine, to refer them to their natural orders, and to give the definitions and the distinctive characters of their several parts.

Materia Medica.—To recognise specimens of the drugs of the Pharmacopœia, to describe their characters and active principles, name the sources from which they are obtained, and the officinal preparations into which they enter; and to detect adulterations.

General and Pharmaceutical Chemistry.—The elementary laws of chemistry and physics, including chemical equations. To recognise the chemical substances of the Pharmacopœia, to describe the processes by which they are obtained; qualitative analysis, including the tests of the Pharmacopœia and volumetric analysis; and to submit to a practical examination in these subjects when required.

Practical Pharmacy.—To translate Latin prescriptions; to detect dangerous doses; to compound and dispense correctly.

To explain the processes of making the non-chemical preparations of the Pharmacopœia, and to recognise them.

Candidates are to give notice to the council, seven clear days before the stated meetings for examination, of their desire to be examined; and also to lodge a receipt of having paid the fee of five guineas into the Bank of Ireland to the credit of the society.

In case of rejection, the sum of 2*l.* 2*s.* will be retained to meet the expenses of examination.

A rejected candidate may present himself for re-examination after a lapse of six months.

Form of Notice.—"*I*, ________________, *desire to be examined for the license to act as Pharmaceutical Chemist.*"

Mr. H. J. Fennell, College of Physicians, Kildare Street, Dublin, will give any additional information required.

THE SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

Professors.

Chemistry and Pharmacy	Professor Redwood, F.C.S.
Botany and Materia Medica ..	Professor Bentley, F.L.S.
Practical Chemistry..	Professor Attfield, F.C.S.

The thirty-sixth Session, 1877–78, will commence on October 1, 1877, and terminate on July 31, 1878.

At 8 P.M. on October 3, the School prizes will be distributed, and an address to the students delivered by Mr. William Southall.

Application for admission to the school, for prospectuses, or for further information, may be made to the professors or their assistants in the Lecture Room or Laboratories, 17 Bloomsbury Square, London, W.C.

CHEMISTRY AND PHARMACY.

By Professor Redwood, Ph.D., F.C.S.

These lectures are delivered on Monday, Tuesday, and Wednesday mornings, at 9 o'clock.

The course consists of 60 lectures of an hour and a half each, equivalent to 90 lectures of the usual length. They include an exposition of the leading principles and doctrines of the science of chemistry and of those branches of allied physical science, the applications of which are involved in the qualifications required for the practice of pharmacy. There are two of these courses during the session, the course which commences in October and ends in February being repeated in the following five months from the beginning of March to the end of July. The whole of the subjects are thus expounded twice in ten months. Students who are unable to commence their attendance at the beginning of the session may enter at any time between October and March. Each course is complete in itself, and includes a description of all the most important chemical and galenical preparations.

used in medicine, which will be fully illustrated with experiments, diagrams, and specimens; but some of the facts referred to in illustration of principles are not the same in each of the courses.

First course, commencing on Monday, October 1, 1877, at 9 o'clock A.M. Second course, commencing on Monday, March 4, 1878, at 9 o'clock A.M.

The subjects treated of in these lectures are comprised under three heads:—1. Physics in relation to chemistry and pharmacy. 2. Inorganic chemistry. 3. Organic chemistry.

FEES.

	£	s.	d.
One Course	3	3	0
An entire Session (two courses)	4	4	0
Perpetual admission	5	5	0

BOTANY AND MATERIA MEDICA.

By Professor BENTLEY, M.R.C.S Eng., F.L.S.

These lectures are delivered three times a week, on Thursday, Friday, and Saturday mornings, at 9 o'clock, throughout the session, which extends from the beginning of October to the end of July.

During the session two courses of lectures are given, each consisting of 60 lectures, and examinations are held weekly. The first course, extending from the beginning of October to the end of February, comprises botany and materia medica, with especial reference to structural botany and the use of the microscope in distinguishing the various drugs; and the second course, which commences in the first week in March and extends to the end of July, also comprises botany and materia medica, but with especial reference to systematic and practical botany. Each course is, therefore, complete in itself, although each has a definite object in view; thus affording students who have but a limited time at their disposal an opportunity of attending at a period most convenient to themselves.

First course, commencing on Friday, October 5, 1877, at 9 o'clock A.M. This course is divided into two parts, as follows:—Part I.—Structural and Physiological Botany. This portion of the course is especially adapted to meet the requirements of pharmaceutical students and those qualifying for analysts. Part II.—Organic Materia Medica. The medicinal substances obtained from the organic kingdom constitute the special object of this course. They are considered in the order of the natural historical relations of the organised beings which produce them. This part of the course being designed for the instruction of pharmaceutical and analytical students, will comprise only a brief notice of the effects and uses of medicines, so as to admit of a fuller description of that portion of the subject which belongs more immediately to the pharmacist and analyst. The medicinal substances which are derived from the official plants and animals will be more particularly described; but all others in common use, or which have been recently introduced, will be also alluded to.

Second course, commencing on Friday, March 1, 1878, at 9 o'clock A.M. This course also comprises lectures on Botany and Materia Medica, arranged in the same order as in the first course, but it also includes Systematic and Practical Botany, as follows:—

SYSTEMATIC AND PRACTICAL BOTANY.

This portion of the second course, which extends from about the middle of May to the end of July, is delivered in the Royal Botanic Society's Gardens, Regent's Park, on Friday and Saturday mornings at eight o'clock. Separate entries may be made for this portion of the course. (See Fees).

FEES.

	£	s.	d.
Botany and Materia Medica, one Course (five months) ..	2	2	0
An entire Session (two Courses), including Systematic and Practical Botany	3	3	0
Systematic and Practical Botany, separately	1	1	0
Perpetual Admission to all the Courses	4	4	0

A student entering for the first course on Botany and Materia Medica is also entitled to attend the lectures on Systematic and Practical Botany on payment of two guineas and a half at the time of entering this first course in October.

PRACTICAL CHEMISTRY.

Professor of Practical Chemistry ..	DR. JOHN ATTFIELD, F.C.S.
Demonstrator	DR. ALFRED SENIER, F.C.S.
Assistant-Demonstrator	MR. HENRY GEORGE GREENISH.

The session commences on Monday, October 1, at 10 A.M. The laboratories are open from ten o'clock in the morning until five in the afternoon daily, except on Saturdays, when they are closed at two o'clock.

There is no general class for simultaneous instruction, each student following an independent course of study always determined by his previous knowledge; pupils can therefore enter for any period at any date. A complete course of instruction, including the higher branches of quantitative analysis, occupies ten full months, and dates from the day of entry to that day twelvemonth. On the entry of a student the professor personally recommends such a course of instruction as appears most appropriate for the pupil.

Each student is provided with certain apparatus, fuel, chemicals, &c., and his working bench is fitted with lock-up cupboard, in which to place the articles lent to him and those purchased by himself. The apparatus to be provided at the expense of the pupil can be obtained of any chemical-apparatus maker for about 25*s*.

FEES.

Hours of Study	One Month	Two Months	Three Months	Five Months	Ten Mouths
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
10.0 to 5.0 on any 3 days weekly ..	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
10.0 to 5.0 on any 2 days weekly ..	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0
Any 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Any 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

CENTRAL SCHOOL OF CHEMISTRY AND PHARMACY.

A new school for the education of pharmaceutical students has been established under the above title at 173 Marylebone Road. Chemistry and Physics are taught by Mr. A. P. Luff, F.C.S., Pereira Medallist; Pharmacy, Botany, and Materia Medica by Mr. J. Woodland, M.P.S. The session commences on October 1, and lectures are given both in the daytime and in the evening. A fitted laboratory is provided.

THE SOUTH LONDON SCHOOL OF PHARMACY,

325 *Kennington Road, S.E.*

Director—Dr. JOHN MUTER, M.A.
Secretary—Mr. WM. BAXTER.

The session commences on September 15, and lasts till July 20, and the following courses of lectures, etc., are delivered several times during the session:—Latin: A course of sixty lessons. Botany: A course of sixty lectures. During the summer months a lecture is delivered once a week, at Mitcham, on Mr. Bridger's herb farm. Materia Medica: A course of sixty lectures. Pharmacy: This course lasts three months, and includes A description of the processes used in pharmaceutical laboratories, and practical instruction in dispensing and elegant pharmacy. Theoretical Chemistry: A course of sixty lectures. Practical Chemistry: I. Junior Course (three months): This includes—1. The manufacture of the chief chemicals of the B.P., in which the processes are typical; 2. Qualitative analysis, and separation of bases and acids; 3. The practical taking of specific gravities, temperatures, and the measurement of gases. II. Senior Course (six months):—This extends to—1. Detection of poisons in organic mixtures. 2. Quantitative analysis of B.P. substances, gravimetric and volumetric; 3. Analysis of manures, water, minerals, etc.; 4. Microscopic and chemical examination of food and drugs, for detecting adulterations; 5. Elementary organic analysis.

Fees.—1. For the whole course of lectures (including admission to the museum), 8*l*. 8*s*. (This fee entitles laboratory students to attend from the date of entry to the end of the entire session. For example, a student entering the school in September can continue to attend the lectures if he chooses until the end of the session in July without extra expense, provided he also attends the laboratory). 2. For the laboratory—Junior Course, three months, 6*l*. 6*s*.; Senior Course, first month, 4*l*. 4*s*.; each succeeding month, 3*l*. 3*s*. Students who attend the lectures must also take laboratory tickets, as the course cannot be divided in any way.

The institution offers silver and bronze medals, for which all the students can compete.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY.

133 *St. George's Road, Southwark, London, S.E.*

Principal—Mr. GEORGE S. V. WILLS, Pharmaceutical Chemist.

The Session extends from September 1 till July 20.

At this institution resident pupils are received, as well as others. The course comprises lectures and practical laboratory instruction in all the subjects required for the Pharmaceutical Examinations. All apparatus and chemicals required in the laboratory are supplied to pupils free.

Prize medals and certificates of attendance and merit are awarded monthly.

Fees.—Preliminary course, 2*l*. 2*s*. per month, or until qualified, 5*l*. 5*s*.; for the whole course of lectures, including the laboratory fees and admission to the museum, 10*l*. 10*s*.; board and apartments, 1*l*. 1*s*. per week extra; for this fee the student can attend until the end of the session without extra cost. For a term of one, two, or three months, school fees, 3*l*. 3*s*. per month, or 7*l*. 7*s*. for three months.

Botanical excursions are made every Saturday during the season.

Classes are held every evening at 8 P.M. for the benefit of students engaged during the day. Terms—4*s*., 6*s*., or 8*s*. per month for Preliminary, Minor, or Major students respectively.

THE MANCHESTER SCHOOL OF PHARMACY.

(*In connection with the Manchester Chemists' Association.*)

The following Courses of Lectures will be delivered by Mr. Louis Siebold, F.C.S., at 225 Oxford Street, commencing early in October:—Thirty lectures on Chemistry, on Friday evenings, from 7.30 to 9 o'clock, fee, 30*s*. Twenty-five lectures on Materia Medica and Pharmacy, on Tuesday evenings, from 7.30 to 8.45, fee, 25*s*. Twenty lectures on Analytical Chemistry, on Tuesday evenings, from 8 45 to 9.45, fee, 20*s*. Composition Fee, admitting the student to all three courses, 3*l*. 5*s*. Students attending these courses must be Associates of the Manchester Chemists' Association. The subscription (2*s*. 6*d*.) may be paid with the fees. Tickets and further information may be obtained of Mr. Siebold, or of Mr. F. Baden Benger, Hon. Sec., 7 Exchange Street. [N.B.—A course of lectures on Botany, by Mr. Leo H. Grindon, will be commenced early after Christmas.]

THE MEDICAL PROFESSION.

To ENTER the medical profession requires a considerable sacrifice of time and money. The annual expenditure of a Cambridge medical student, besides that for clothing and maintenance, is about 150*l*. per annum, and this continues for the average student for five years. After he is fully qualified some years must elapse before he can acquire a practice large enough to support him. It is true that the expenses and in some cases the length of the curriculum may be reduced by successful students, who obtain scholarships and honours. But an ordinarily economical and industrious student will probably expend at least a thousand pounds of money and ten years of time in acquiring a good position in his profession.

Anyone who has obtained a qualification from either of the nineteen bodies mentioned hereafter may practise medicine without let or hindrance. If, however, he desires to be able to recover in court of law his charges for professional attendance, to hold public appointments or to sign legal certificates, he must obtain registration by submitting his diploma in evidence of his qualification to the Registrar of the General Medical Council and paying *5l.* Still nothing prevents a qualified unregistered person from keeping an open surgery and doing a ready-money business.

The qualification spoken of is granted in the United Kingdom by nineteen corporate bodies. These are detailed below, with a summary of their requirements, the diplomas they grant, and the fees they demand. The qualifications are so numerous, and can be obtained by such various conditions, that it saves much time and expense if the intending student of medicine at the outset of his studies decides which of them he intends to seek. In other words, he should make up his mind before which of the examining bodies he will present himself. Degrees such as M.B. (Bachelor of Medicine), M.D. (Doctor of Medicine), M.C. or M.S. (Master of Surgery) are granted only by Universities. If he desire one of these he must enter his name on the books of one of the ten Universities which grant them, and in most cases must reside there at least three years before he commences his four years' medical study. But the time and expenditure required is different for each degree. Nine corporate bodies, besides the Universities, grant diplomas which are recognised by the General Medical Council. If the student only desires registration, without a degree, he will find that the regulations by which the necessary diplomas can be obtained also vary in important particulars. The fees for the examinations on which the diplomas are granted range from six to thirty guineas; the curriculum required is longer in some than in others. Some allow it to be completed in any recognised school; others require that the whole shall be undergone at their own.

It is not advisable for the student to limit his attainments to simple qualification for registration. It is true that this will allow him to practise all branches of his profession, but to obtain public appointments of any value a "double" qualification is needed. A "double" qualification means a diploma for surgery as well as one for medicine, which necessitates in most cases a double examination and a double fee. In a few cases arrangements have been made by which the double qualification may be obtained at a single examination with a fee only slightly increased. An examination is held by the Royal College of Surgeons, Edinburgh, at which representatives of the Royal College of Physicians are present, and on passing this examination the student is granted a double diploma, which may be registered under the Medical Act. Besides this there is a decided and well understood advantage in studying the same subject on two or more systems.

In every case the student at the commencement of his professional studies must pass a Preliminary Examination in general subjects.

All the licensing bodies themselves hold such examinations. But in most cases, besides their own, they will accept certificates from several other sources. The Oxford University alone requires all candidates for her medical degrees to take that of B.A. Oxon. first. From one point of view it matters little which of the Preliminary Examinations the student undertakes; but on the other hand the Matriculation Examination of the London University is the most valuable. Intrinsically it is the hardest, but it franks all others, with the exception of Oxford, and is the only one accepted for the University medical degrees, which are the highest qualifications obtainable in the profession. The London Matriculation also exempts from any further Preliminary in case the student should proceed to the Fellowship of the College of Surgeons. If he does not pass the London Matriculation Examination, but still desires to take a degree, he must pass the Preliminary of the College whose degree he desires. If he only wants the usual minor qualifications in medicine or surgery, it does not matter which examination he undertakes, as the certificate of either franks the rest. Those most generally resorted to are the examinations of the London College of Surgeons, the United Colleges of Physicians and Surgeons of Edinburgh, the Apothecaries' Society, the Glasgow Faculty of Physicians and Surgeons, and the Registration Examination for Medical Students of the University of Dublin.

As soon as the Preliminary Examination is passed the student must register himself as a medical student at the office of the General Medical Council, 315 Oxford Street, W.

Until this is done his studies will not be recognised by the General Medical Council, and he must in all cases be engaged in medical studies for at least four years after registration. The Royal College of Physicians (London) requires 2½ years, the Society of Apothecaries 3 years, of this time to be spent at a recognised medical school, and that the remainder of the time, either before or afterwards, should be spent either in hospital practice or as assistant to some qualified medical practitioner, holding public appointments, whose practice is sufficiently extensive to afford the student full opportunity for the practical study of disease.

The regulations of the other examining bodies differ chiefly in the length of time required to be spent in the medical school. The curriculum followed varies only slightly. In the larger medical schools so many valuable scholarships are open to competition that a hardworking student can largely reduce the expenses of his education.

The General Medical Council fixes twenty-one as the earliest age at which a candidate for any professional license shall be admitted to his final examination, the age in all instances to be duly certified. Previous to this final examination the Council requires as a minimum of qualification that he must have been registered as a medical student at least forty-eight months, and must have gone through a course of professional study comprehending attendance during four winter sessions or three winter and two summer sessions at a recognised school. The Medical Council also makes certain claims with regard to the examinations themselves. With regard to the Preliminary, which must be passed before a medical student may be registered as such, it is required that it shall include English language (including Grammar and Composition), Arithmetic (including Vulgar and Decimal Fractions), Algebra (including Simple Equations), Geometry (first two books of Euclid), Latin (including Translation and Grammar); and one of the following optional subjects: Greek, French, German, Natural Philosophy (including Mechanics, Hydrostatics, and Pneumatics).

For the Professional Examination it requires, "That the Professional Examination for a license be divided into two parts; the first embracing the primary or fundamental branches directly connected with the practice of medicine or surgery. That the former be not undergone till after the close of the winter session of the second year of professional study; and the latter, or final examination, not until after the close of the prescribed period of professional study.

"That the examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

"That the Professional Examinations be conducted both in writing and orally, and that they be practical in all branches in which they admit of being so.

"That excellence in one or more subjects should not be allowed to compensate for failure in others; and that if a candidate be rejected for failure in any one subject he should be re-examined in all."

The foregoing are the requirements of the General Medical Council, which holds, and can withhold, the right of registration. The reader will bear in mind that these stipulations *at least* have to be observed by all the examining bodies, and this will save us much repetition. It should be remembered that all students are supposed to be registered.

The examining bodies themselves are the following:—

The University of Oxford, which grants the degrees of **M.B.** and **M.D.** The medical student must pass the requisite examinations for the degree of B.A., and afterwards spend two years in study prior to the first or scientific examination for the degree of Bachelor of Medicine, and two years more prior to the final or practical examination for the same degree. Evidence must be brought to show that he has studied the practical parts of his profession in a first-class hospital. A dissertation has to be publicly read three years after the M.B., for the degree of M.D.

The University of Cambridge, besides **M.B.** and **M.D.**, grants the degree of **M.C.** (Master in Surgery). For M.B. five years of medical study are required, except in the case of medical students who have graduated with honours as Bachelors of

Arts, four years being then sufficient. There are three examinations. The *first* in Mechanics and Hydrostatics, Chemistry (with Heat and Electricity), and Botany. The *second*, in Anatomy and Physiology (Human and Comparative), and Pharmacology. The *third* (at the conclusion of medical study), in Pathology and the Practice of Physic, Clinical Medicine, and Medical Jurisprudence. The examinations are partly in writing and partly oral, in the hospital, and take place twice annually. Previously to the first examination, lectures must have been attended on Chemistry (with manipulations) and Botany. Previously to the second examination, the student must have attended lectures on Anatomy and Physiology (Human and Comparative), Materia Medica, Pharmacy, and Pathology; have dissected one season; and attended hospital practice one year. Previously to the third examination, lectures must have been attended on the Principles and Practice of Physic, Clinical Medicine, Medical Jurisprudence, and Midwifery; also Hospital Practice for three years.

The degree of M.D. may be taken three years after M.B. The regulations are similar to those at Oxford.

For the degree of M.C., the candidate must have passed the three examinations for M.B., and have attended lectures on Human Anatomy (a second course), on the Principles and Practice of Surgery, Clinical Surgery, Midwifery (with ten cases); also a second season of Dissections, three years' surgical practice at a recognised hospital, and a house-surgeoncy or dressership for six months. He is then required to pass an examination in Surgical Anatomy, Pathology, the Principles and Practice of Surgery, and Clinical Surgery.

The University of London is only an examining body, and does not undertake any teaching work. It stipulates for the **M.B.** degree: (1) The Matriculation Examination, or a degree of Arts, is accepted from the Universities of either Sydney, Melbourne, or Calcutta. (2) The Preliminary Scientific Examination and two examinations in medicine. The student must also have been engaged in professional studies at least four years subsequent to matriculation. The degree of **M.D.** may be competed for four years, or, in some cases, five years after the M.B. degree has been taken. It includes Logic and Moral Philosophy and Medicine, with practical examination in Clinical Medicine. The University of London also grants the degrees of **B.S.** and **M.S.** (Bachelor and Master in Surgery). These comprehend the M.B.

The University of Durham grants a license in medicine four years after matriculation, **M.B.** three years later, and **M.D.** one year later still, provided that the requisite courses are fulfilled and examinations passed. *Licentiates* and *Masters in Surgery* are also degrees granted by this University. These do not necessarily require that all the examinations for M.B. shall be passed.

Note.—Practitioners of fifteen years' standing are now admitted, under certain conditions, to the degree of M.D. without previous residence.

The University of Edinburgh confers the degrees of **M.B., C.M.,** and **M.D.** The first must be passed before either of the others are granted. For the M.B. and C.M. degrees a course of four years, and 1,150 lectures, at least, of medical and surgical study is required, and each candidate is examined both in writing and *vivâ voce*—1st, on Chemistry, Botany, and Natural History; 2nd, on Anatomy, Institutes of Medicine, Materia Medica (including Practical Pharmacy) and Pathology; 3rd, on Surgery, Practice of Medicine, Midwifery, and Medical Jurisprudence; 4th, clinically on Medicine and on Surgery in a hospital. For the M.D. degree two years of medical and surgical practice must elapse, the candidate must be a graduate in Arts, and must submit a thesis composed by himself on any branch of knowledge comprised in the professional examinations for the M.B. degree.

The University of Glasgow grants the same degrees, and provides curricula and examinations similar to those of the University of Edinburgh.

The same may be said of the **University of Aberdeen.**

Also of the **University of St. Andrew's**; except that by the latter the degree of Doctor in Medicine may be conferred on any registered medical practitioner above the age of forty years whose professional position and experience are such as, in the estimation of the University, to entitle him to that degree, and who shall, on examination, satisfy the medical examiners of the sufficiency of his professional knowledge; provided always, that degrees shall not be conferred, under this section, to a greater number than ten in any one year.

The University of Dublin (Trinity College) grants the degrees of **M.B**, **M.D**, and **M.Ch.**, and also licenses in medicine (**L.M.**) and surgery (**L.S.**). To take the degree of M.B. it is required that the candidate shall also take that of B.A., and shall have attended hospital and lectures for four years. The M.D. degree is granted to an M.B. of three years' standing, who must perform exercises before the Regius Professor of Physic. The degree of M.Ch. demands a curriculum somewhat different from, though of the same length of time as, that required for the M.B. examination. A licentiate in medicine or surgery must pass the medical course and examinations required for M.B. or M.Ch. respectively, but the fees are somewhat lower. He can, however, afterwards take up his degree.

The Queen's University of Ireland comprises the Queen's Colleges of Belfast, Cork, and Galway, each of which possesses a Faculty of Medicine. The degrees of **M.D.** and **M.Ch.** are granted by this University. The curriculum for either extends over four years, and comprehends the usual subjects.

Besides the foregoing Universities, the following Corporations grant licenses to practise:—

The Royal College of Physicians, London. There are Licentiates, Members, and Fellows of the Royal College of Physicians, London. The licentiates have passed a Preliminary Examination in Arts, and two other professional examinations, besides giving evidence of at least four years of professional education as a registered medical student. The fee is fifteen guineas. The course of study previous to the examination for membership is almost similar to that prescribed for the licentiates. Members may also be admitted, after a certain examination, who have taken the degree of M.B. at other universities. The fee is thirty guineas. The members of the College are eligible for Fellowship.

The Royal College of Surgeons of England. To become a member the following course is prescribed. Preliminary Examination:—Students can pass this at the College. Fee 2*l.* Certain certificates, as, for instance, that of the Middle Class Examinations (Senior), are accepted in lieu of this examination, provided such include Latin and Mathematics. The Professional Education must comprise four years of study subsequent to the Preliminary Examination, and include certain attendances at lectures and hospital practice. The fee is 22*l.* For Fellowship the curriculum is longer, the examinations more severe, and the fees higher. Or a member of eight years' standing may offer himself for the final examination for the Fellowship. The Royal College of Surgeons also grants certificates of qualification in midwifery and in dental surgery.

The Royal College of Physicians, Edinburgh, grants licenses in medicine. The fee here is ten guineas. The curriculum is very similar to that which has been described. Any licentiate of a College of Physicians, or graduate of a British or Irish University, with whose knowledge of medical and general science the College may be satisfied, may be admitted a member of the College, provided he shall have attained the age of twenty-four years. The fee to be paid by a member is 31*l.* 10*s.* When a licentiate is raised to the rank of member he pays 21*l.* When a member is raised to the rank of fellow the fee is 31*l.* 10*s.*, exclusive of stamp-duty, which amounts to 25*l.*

The Royal College of Surgeons, Edinburgh, also grants diplomas of membership. The fee here for the professional examination amounts to 10*l.*

The Royal College of Physicians of Edinburgh, and the **Royal College of Surgeons of Edinburgh,** while they still continue to give their diplomas separately, under separate regulations, have made arrangements by which, after one series of examinations, the student may obtain the diplomas of both colleges. The general principle of this joint examination is that it shall be conducted by a board in which each body is represented in those branches which are common to both medicine and surgery; but that the College of Physicians shall take exclusive charge of the examination in medicine, and the College of Surgeons of the examination in surgery. The object of the joint examination is to give to students facilities for obtaining from two separate bodies, and at less expense, a qualification in medicine and a qualification in surgery. Students passing that examination successfully will be enabled to register two qualifications under the Medical Act—Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh.

The Faculty of Physicians and Surgeons of Glasgow also grant a diploma. The candidates follow a curriculum similar to that of the Edinburgh College of Surgeons. The fee for the Preliminary Examination is 10*s.*, and for the Professional Examinations 10*l.* In connection with the Royal College of Physicians of Edinburgh a double diploma is also granted. The fee for this, as for the similar double diploma in Edinburgh (Professional Examinations only), is 16*l.*

The King and Queen's College of Physicians in Ireland grants a license in medicine, and also a license in midwifery. A four-year's course of medical study is required, and a special additional examination for the midwifery qualification. The fee for the license in medicine is 15 guineas; for the midwifery diploma, 3 guineas; or, if both are taken out together, 16*l.*

The Royal College of Surgeons in Ireland grants *Letters Testimonial* and Fellowship. For the former a Preliminary Examination and the usual medical course is required, the total of the fees being 26*l.* 15*s.* For Fellowship the B.A. or an equivalent examination is demanded as preliminary, and a longer course of study. The fee is 47*l.* 5*s.* if the candidate intends to practise within ten miles of Dublin, or 36*l.* 15*s.* otherwise.

The Society of Apothecaries, London, grants a certificate of qualification to practise as an Apothecary, and requires that the candidate shall produce testimonials of having passed a Preliminary Examination in Arts, as a test of general education. Of having served an apprenticeship or pupilage of not less than five years to a practitioner qualified by the Act of 1815. This period may include the time spent in attending lectures and hospital practice. Of having attained the full age of twenty-one years. Of good moral conduct. And of having pursued a course of medical study in conformity with the regulations of the Court. The course of study includes three winter sessions and two summer sessions. The extent of the examinations is modified towards gentlemen holding the diplomas of other examining bodies. The Society also grants a certificate of qualification to act as an assistant, the examination comprising the following subjects:—In translating physicians' prescriptions; in the British Pharmacopœia; in Pharmacy, Pharmaceutical Chemistry, and Materia Medica. *Fees.*—For a certificate of qualification to practise, six guineas, the half to be paid at the first examination; for an assistant's certificate, two guineas.

The Apothecaries' Hall of Ireland. *Professional Education and Examination.*—Every candidate for the license to practise must produce certificates to the following effect:—1. Of having passed an examination in Arts (*i.e.* a Preliminary Examination) previously to entering on professional study. 2. Of being registered as a Student in Medicine. 3. Of being at least 21 years of age, and of good moral character. 4. Of apprenticeship to a qualified apothecary, or of having been engaged in Practical Pharmacy with an apothecary for three years subsequently to having passed the examination in Arts. 5. Of having spent four years in professional study. 6. Of having attended the following courses—viz., Chemistry, during one winter session; Anatomy and Physiology, during two winter sessions; Demonstrations and Dissections, during two winter sessions; Botany and Natural History, during one summer session; Practical Pharmacy and Practical Chemistry (in a recognised laboratory), each during three months; Principles and Practice of Medicine and Therapeutics, during one winter session; Midwifery and Diseases of Women and Children, during six months; Practical Midwifery at a recognised hospital (attendance upon twenty cases); Surgery, during one winter session; Medical Jurisprudence, during one summer session; instruction in the practice of Vaccination. 7. Of having attended at a recognised hospital or hospitals the Practice of Medicine and Clinical Lectures on Medicine, during two winter and two summer sessions; also the Practice of Surgery and Clinical Lectures on Surgery during one winter and one summer session. The examinations are divided into two parts, the first part comprehending Chemistry, Botany, Anatomy, Physiology, and Pharmacy; the second, Medicine, Therapeutics, Surgery, Pathology, Midwifery, Forensic Medicine, and Hygiene.

Candidates for the certificate of Assistant to an Apothecary in Ireland, in compounding and dispensing medicine, are examined in the British Pharmacopœia and in Pharmacy, scientific and practical, including the history, characters, and qualities of medicines, with their preparations and doses, and in the translation of Latin prescriptions. Neither the Arts certificate nor the certificate of Apprentice is required for the examination of Assistant.

MEDICAL OFFICER OF HEALTH.

Of the various public appointments open to medical men alone the most important is that of Medical Officer of Health. The only legally required qualification is the usual double qualification for the practice of medicine. But in view of the large demand for specially qualified persons five of the examining bodies have provided examinations in matters relating to State Medicine or Public Health, and grant certificates of proficiency in that subject. These five bodies are the London, Cambridge, Edinburgh, and Glasgow Universities, and the Royal College of Physicians, Edinburgh.

The syllabus of the examination is almost the same in each case, and we shall only quote that of the London University. The fees, certificates, and other qualifications required before examination differ slightly. They are as follows:—

The London University grants certificates of proficiency in Public Health, and a 5*l.* gold medal to a candidate who evinces sufficient merit. The examination is held annually on the second Monday in December. Candidates must have held the degree of M.B. (London) for at least one year. Two months' notice is required by the registrar. The fee is 5*l.*

The University of Cambridge grants a certificate of competency for the duties of a Medical Officer of Health on the results of a double examination in "State Medicine." Candidates must be on the Medical Register and 24 years of age. Fee for entire examination, eight guineas. Professor Liveing, Cambridge, will supply further information.

The University of Edinburgh grants degrees of "Bachelor and Doctor of Science in the Department of Public Health." Candidates must hold a degree in medicine in some British or foreign university recognised by the University Court. They must undergo at least two courses of instruction at the University in professional or scientific studies bearing on the subjects of examination. Candidates may enter for the two examinations for B.Sc. Dep. Pub. Health at an interval of five months. They must have attended a course of instruction in Public Health, and have had at least three months' recognised instruction in Analytical Chemistry. The examinations are held in October and April.

Bachelors of Science in Dep. Pub. Health may proceed to the degree of Doctor in the same department after the lapse of one year. They must produce evidence that they have been engaged in Practical Sanitation during one year, and must, before January 31, deposit an original or critical thesis on some matter connected with their occupation. Fees for B.Sc. Pub. Health beyond those for M.B.Ed., 10*l.* 10*s.*; for D.Sc., 5*l.* 5*s.* more.

The University of Glasgow grants certificates of qualification on Public Health. The examination is held on the second Tuesday in April, in two divisions. All candidates must be registered medical practitioners, and must have attended recognised courses in Public Health and Analytical Chemistry. Fee eight guineas, payable one month before examination. Further information may be obtained from Professor Simpson, University of Glasgow.

The Royal College of Physicians of Edinburgh grants a similar certificate. Candidates must be registered medical practitioners. Examinations held in April and October. Whole charge for certificate, ten guineas, payable in instalments of three, three, and four guineas, the first one week before examination.

At University College, London, there is a special class in Hygiene and Public Health, the fee for the entire course being fourteen guineas, plus materials required in the practical course.

The Examination at the London University includes the following subjects:—Chemistry and Microscopy, in their relation to air, water, and food; Meteorology and Geology (as far as they bear on the duties of Health Officers, viz., general knowledge of meteorological conditions, reading and correction of instruments, general knowledge of soils, their conformation and chemical composition; Vital Statistics in reference to the methods employed in determining the health of a community, birth rate, death rate, disease rate, duration and expectancy of life, present amount of mortality and its causes in different communities; Hygiene — general principles of hygiene; Special Topics — soil, construction of dwellings, conservancy of cities, unhealthy trades, supply of food to cities and examination of food, disposal of sewage, water supply; Medicine, in reference to the origin, spread, and method of prevention of diseases generally, but especially of those of the epidemic class; Sanitary Engineering (as far as regards the arrangement connected with water supply, sewerage, and ventilation), a knowledge of the reading of plans, sections, scales, &c.; Sanitary Law (as far as it relates to the duties of Officer of Health), a knowledge of the powers given under the various Sanitary Acts, as defined in the instructions issued by the Local Government Board, and of the methods of procedure in special cases. This syllabus covers that of all the other four examining bodies. In each case the examination is written, oral and practical, and includes the analysis of one or more samples of air, water, and adulterated food or drugs.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

This great hospital was founded in 1123. Within the grounds are contained the Church of St. Bartholomew the Less; a college for the residence of medical pupils; the hospital, with 710 beds, laboratories, libraries, museums, theatres, and pleasure grounds. More than 150,000 patients were relieved during 1876. The school premises are on the point of being rebuilt. When the alterations are completed the accommodation will be more than doubled. There are numerous valuable scholarships open to the pupils.

LECTURERS.

Clinical Medicine	Dr. Black, Dr. Andrew Dr. Southey, Dr. Church
Surgery	Mr. Holden, Mr. Savory, F.R.S. Mr. Callender, F.R.S. Mr. Thomas Smith
Descriptive and Surgical Anatomy	Mr. Thomas Smith, Mr. Langton
General Anatomy and Physiology	Mr. Morrant Baker
Histology	Dr. Klein, F.R.S.
Chemistry	Dr. Russell, F.R.S. Dr. Armstrong, F.R.S.
Materia Medica and Diseases of the Larynx	Dr. Bruntoa, F.R.S.
Forensic Medicine and Hygiene	Dr. Sonthey
Midwifery and the Diseases of Women and Children	Dr. Greenhalgh
Botany	Rev. George Henslow
Pathological Anatomy	Dr. Geo
Comparative Anatomy	Dr. Moore
Ophthalmic Medicine and Surgery	Mr. Power
Dental Anatomy and Surgery	Mr. Coleman
Mental Diseases	Dr. Claye Shaw
Morbid Anatomy	Dr. Wickham Legg
Diseases of the Skin	Mr. Morrant Baker
Orthopædic Surgery	Mr. Willett
Diseases of the Ear	Mr. Langton
Diseases of the Eye	Mr. Vernon
Practical Surgery	Mr. Marsh
Practical Anatomy and Operative Surgery	Mr. Cumberbatch, Mr. Walsham
Mechanical and Natural Philosophy	Mr. Graham
Practical Physiology	Mr. Shuter

Medical Tutor—Dr. Moore.

CHARING CROSS HOSPITAL SCHOOL OF MEDICINE.

The hospital contains 150 beds. About 1,200 in-patients and 17,000 out-patients are treated annually. The aggregate fee for matriculated students, that is for students who remain here for their whole educational course, is 78*l*. 8*s*.; for others, 80*l*. 8*s*. Composition Fee for Dental Surgery, 42*l*. 2*s*.

Introductory Lecture October 1, at 4 P.M., by J. Astley Bloxam, F.R.C.S.

LECTURERS.

Anatomy and Operative Surgery	Edward Bellamy, F.R.C.S.
Bandaging Demonstrations and Dissections	R. J. Godlee, B.A., M.S., F.R.C.S.
Botany	J. C. Saunders, M.A.
Chemistry and Practical Chemistry	C. W. Heaton, F.C.S. Demonstrator, Mr. A. H. Hooker
Clinical Medicine	Alexander Silver, M.A., M.D.
Clinical Surgery	H. Hancock, F.R.C.S.
Comparative Anatomy	J. F. Blake, M.A.
Dental Surgery	John Fairbank, M.R.C.S.
Diseases of Children	T. Barlow, B.Sc., M.D.
Forensic Medicine	J. Pearson Irvine, B.A., B.Sc., M.D.
Materia Medica and Therapeutics and Morbid Histology	J. Mitchell Bruce, M.A., M.D.
Mental Diseases	J. Forbes Winslow, D.C.L., M.D.
Pathology and Morbid Anatomy	T. Henry Green, M.D., F.R.C.P.
Physiology, Theoretical and Practical	Alexander Silver, M.A., M.D. J. Cantlie, M.A., M.B.
Principles and Practice of Medicine	A. J. Pollock, M.D., F.R.C.P.
Principles and Practice of Midwifery and Diseases of Women	J. Watt Black, M.A., M.D.
Principles and Practice of Surgery	Edwia Canton, F.R.C.S.
Public Health	C. W. Heaton, F.C.S. J. Pearson Irvine, B.A., B.Sc., M.D. W. Eassie, C.E.
Skin Diseases	A. Sangster, M.B.
Surgical Pathology	J. Astley Bloxam, F.R.C.S.

Francis Hird, F.R.C.S., Dean.
J. Pearson Irvine, B.Sc., B.A., M.D., Sub-Dean.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.

The hospital contains 353 beds—205 for surgical and 148 for medical cases. Perpetual fee, 105*l*.

Introductory Lecture, October 1, at 4 P.M., by Mr. Pick.

LECTURERS.

Medicine	Drs. Dickinson, Whipham, Wadham, and Barclay
Surgery	Messrs. Pollock, Rouse, Lee, and Hayward
Pathology and Materia Medica	Dr. Dickinson
Anatomy	Drs. Carafy, Ewart, and Mr. Pick
Ophthalmic Surgery	Mr. Brudenell Carter
Chemistry	Drs. Ralfe, Watney, and Whipham
Histology	Dr. Watney
Midwifery and Diseases of Women and Children	Dr. Barnes
Medical Jurisprudence and Diseases of the Skin	Dr. Wadham
Psychological Medicine	Dr. Blandford
Dental Surgery	Dr. Edgelow
Aural Surgery	Mr. Dalby
Botany and Diseases of the Throat	Dr. Whipham
Comparative Anatomy	Dr. Brailey

KING'S COLLEGE MEDICAL SCHOOL.

The hospital, situated in Portugal Street, Lincoln's Inn, W.C., contains 170 beds in use. During the past year 1,690 in-patients, and 31,942 out-patients were relieved, besides 618 midwifery cases attended in their own homes. Professor Bentley, F.L.S., is the Dean of the Faculty, and will supply any further information.

The Introductory Lecture will be delivered on October 1, at 4 P.M., by Professor Lister, F.R.S.

Aggregate fee, 100*l*.

PROFESSORS AND DEMONSTRATORS.

Anatomy, Descriptive and Surgical	John Curnow, M.D.
Physiology Practical Physiology	Gerald F. Yeo, M.D.
Chemistry Practical Chemistry	C. L. Bloxam, F.C.S. W. N. Hartley, F.C.S. J. M. Thomson, F.C.S.
Clinical Medicine	George Johnson, M.D., F.R.S.
Medicine, Principles and Practice of	L. S. Beale, M.D., F.R.S.
Clinical Surgery	John Wood, F.R.S. Joseph Lister, F.R.S.
Surgery, Principles and Practice of	H. Smith, F.R.C.S.
Botany	Robert Bentley, F.L.S.
Materia Medica and Therapeutics	E. B. Baxter, M.D.
Obstetric Medicine	W. Playfair, M.D.
Forensic Medicine	D. Ferrier, M.D., F.R.S.
Comparative Anatomy	A. H. Garrod, M.A., F.R.S.
Pathological Anatomy	Alfred B. Duffin, M.D.
Hygiene	W. A. Guy, M.B., F.R.S.
Dental Surgery	S. Hamilton Cartwright, M.R.C.S.
Ophthalmology	J. Soelberg Wells, M.D., F.R.C.S.
Psychological Medicine	Edgar Sheppard, M.D.

THE LONDON HOSPITAL AND MEDICAL COLLEGE.

This hospital, established in 1740, is now the largest in London, the recent addition of the Grocers' Company's Wing having raised the number of beds to 800. It was also the first in Great Britain to establish a complete medical school. The ninety-third session of the school will be commenced on October 1 by a conversazione at 8 P.M.

Perpetual fees for lectures and hospital practice, payable in advance, 90 guineas.

LECTURERS.

Medicine	H. G. Sutton, M.B. Lond. S. Fenwick, M.D.
Surgery	John Couper, F.R.C.S. Eng.
Descriptive and Surgical Anatomy	Walter Rivington, M.S. Lond.
Practical Anatomy	H. S. Wilson, M.A. Cantab., M.D.
Chemistry, Medical Jurisprudence, and Public Health	C. Meymott Tidy, M.B.
Physiology, General Anatomy, and Histology	J. McCarthy, M.B. Lond., &c.
Comparative Anatomy	E. B. Aveling, D.Sc.
Anatomy and Pathology of the Teeth	A. W. Barrett, M.B. Lond., &c.
Midwifery and Diseases of Women	James Palfrey, M.D.
Aural Surgery	A. Gardiner Brown, F.R.C.S. Ed.
Toxicology	J. E. D. Rodgers, M.R.C.S. Eng.
Materia Medica and General Therapeutics	M. Prosser James, M.D.
Botany	John Gilbert Baker, F.L.S.
Practical Surgery	C. F. Maunder, F.R.C.S. Eng.

Pathology and Demonstrations of Morbid Anatomy	H. G. Sutton, M.B. Lond.
Diseases of the Throat and Use of the Laryngoscope	Morell Mackenzie, M.D. Lond.

Secretary—R. Kershaw, M.R.C.S. Eng.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

Composition fee, 95 guineas, payable in advance.
Introductory Address, October 1, at 3.30 P.M., by Mr. H. W. Page.

LECTURERS.

Medicine	Dr. Handfield Jones, F.R.S. Dr. Sieveking Dr. Chambers Dr. Broadbent
Surgery	Mr. Spencer Smith Mr. Haynes Walton Mr. J. R. Lano Mr. Norton Mr. H. W. Pago
Physiology	Dr. Lawson Dr. Shepherd
Anatomy	Mr. E. Owen
Dissections	Mr. J. G. Garbutt (Demonstrator) Mr. C. D. Adam (Assistant Demonstrator)
Pathology and Diseases of the Skin	Dr. Cheadle
Chemistry and Natural Philosophy	Dr. C. R. A. Wright, F.C.S. Mr. A. P. Luff, F.C.S. (Demonstrator)
Dental Surgery	Mr. Howard Hayward
Midwifery	Dr. Meadows Dr. Wiltshire
Materia Medica	Dr. Farquharson
Botany	Mr. F. A. Hanbury, M.A.
Medical Jurisprudence	Dr. Randall
Ophthalmic Surgery	Mr. Haynes Walton
Aural Surgery	Mr. G. Field
Comparative Anatomy	Mr. St. George Mivart, F.R.S.

THE MIDDLESEX HOSPITAL MEDICAL COLLEGE.

The hospital is situated in Berners Street, Oxford Street, W. It contains 305 beds, 33 of which are reserved for cancer patients. Last year 2,369 in-patients were admitted, 24,467 out-patients were relieved, and 500 maternity cases attended. Aggregate fee for perpetual attendance on hospital practice, 90*l*., paid in advance; for dental students, 40 guineas. The Dean, Mr. A. Clark, will supply further information.

Introductory Address October 1, at 3 P.M., by Mr. Arthur Hensman.

LECTURERS.

Medicine	Dr. Cayley, Dr. Greenhow, F.R.S. Dr. Thompson
Psychological Medicine	Dr. Henry Rayner
Surgery (General, Clinical, and Practical)	Mr. Hulke, F.R.S., Mr. Nunn Mr. Geo. Lawson Mr. Morris, M.A., M.B. Lond.
Physiology, Histology and General Anatomy	Mr. B. Thompson Lowno
Pathological Anatomy	Dr. Coupland
Chemistry	Mr. W. Foster, B.A. Cantab.
Midwifery and Diseases of Women and Children	Dr. J. Hall Davis, Dr. Arthur Edis
Diseases of the Eye	Mr. Critchett
Dissecting Room	Mr. Hensman, Mr. C. E. Thompson
Materia Medica and Therapeutics	Dr. Thorowgood
Medical Jurisprudence	Dr. R. King, M.A. Cantab.
Botany, Zoology, and Comparative Anatomy	Mr. Hensman
Public Health, Diseases of the Skin	Dr. G. H. Evans, M.A. Cantab.
Diseases of the Larynx and Ear	Mr. A. Clark

ST. THOMAS'S HOSPITAL.

St. Thomas's, one of the four Royal Hospitals, was founded A.D. 1207 by the Canons of the Priory of St. Mary Overie, Southwark, as a temporary substitute for their Priory, which had been destroyed by fire. In 1215, Peter de Rupibus, Bishop of Winchester, removed it to a site near London Bridge, and dedicated it to St. Thomas the Martyr of Canterbury. In 1252 it contained 40 beds for poor, infirm, and impotent people. In 1535 its various buildings, among other church property, were confiscated by Henry VIII., but in consequence of the representations of the Lord Mayor and other influential citizens, it was placed, with several other properties, in the hands of the Corporation, to make provision for indigent and diseased folk. The hospital building had two narrow escapes from destruction by fire in the early part of the seventeenth century, but remained undisturbed till 1862, when, after a stationary existence of more than six hundred years, its site was sold to the railway companies, and the hospital was removed to Westminster.

The new erection, which was opened by the Queen in 1871, contains 572 beds, in six isolated blocks. Each patient has, at least, 1,800 cubic feet of air allotted to him. In the year ending December 31, 1876, 3,244 patients were admitted to the hospital, 20,417 out-patients were treated, 1,620 women were attended during their confinement at their own homes, and casualties attended 51,340 times.

The Medical School is a comparatively modern growth, as it had no real existence before the year 1768.

The Introductory Address for the session 1877-78 will be delivered on October 1, at 4 P.M., by Mr. W. W. Wagstaffe.

Aggregate fee, 100*l*.

LECTURERS AND DEMONSTRATORS.

Medicine	Dr. Bristow, Dr. Ord
Clinical Medicine	Dr. Murchison, Dr. Bristowe Dr. Stone, Dr. Ord
Surgery	Mr. S. Jones Mr. MacCormac
Clinical Surgery	Mr. S. Jones, Mr. Croft Mr. MacCormac, Mr. Mason
General Pathology and Diseases of the Skin	Dr. Payne
Descriptive Anatomy	Mr. Mason Mr. W. W. Wagstaffe
General Anatomy and Physiology	Dr. John Harley
Ophthalmic Surgery	Mr. Liebreich
Chemistry and Practical Chemistry	Dr. Bernays
Midwifery and the Diseases of Women and Children	Dr. Gervis
Physics and Natural Philosophy	Dr. Steno
Materia Medica and Therapeutics	
Forensic Medicine	Dr. Payne, Dr. Cory
Morbid Anatomy, Practical Pathology and Diseases of the Throat	Dr. Greenfield
Botany	Mr. A. W. Bennett
Comparative Anatomy	Mr. C. Stewart
Mental Diseases	Dr. Wm. Rhys Williams
State Medicine	Dr. A. Carpenter
Practical Physiology	Dr. T. C. Charles
Practical and Manipulative Surgery	Mr. Croft Mr. MacKellar
Diseases of the Ear	Mr. Clutton
Diseases of the Teeth	Mr. J. W. Elliott Mr. W. G. Ranger
Extra Demonstrations in Anatomy	Dr. Reid and Assistants
Microscopical Anatomy	Mr. Rainey

WESTMINSTER HOSPITAL MEDICAL SCHOOL.

This hospital was founded by voluntary subscriptions in 1719, and was the first so established. It was incorporated by Act of Parliament in 1836, and is now being enlarged to contain 200 beds. Last year, with smaller resources, it received 1,817 in-patients and 19,968 out-patients, a total of 21,785. The dean of the school is Mr. Cowell, who will supply further information.

Introductory Address, October 1, at 3 P.M., by Dr. W. C. Grigg.

Aggregate Fee, 84*l*.

LECTURERS.

Clinical Medicine	Dr. Fincham Dr. Sturges Dr. Allchin
Clinical Surgery	Mr. Cowell Mr. Davy Mr. Macnamara
Medicine	Dr. Fincham Dr. Sturges
Surgery and Practical Surgery.	Mr. Cowell Mr. Davy
Anatomy	Mr. A. Pearce Gould Mr. W. Ottley
Physiology	Dr. Maclure
Practical Physiology and Histology, Pathology and Morbid Anatomy	Dr. Allchin
Chemistry and Practical Chemistry, Toxicology and Metallurgy	Dr. Dupré, F.R.S.
Midwifery and Diseases of Women	Dr. Potter
Materia Medica and Therapeutics	Dr. Phillips
Botany	Mr. H. W. S. Worsley Benson, F.L.S.
Psychological Medicine	Dr. Sutherland
Ophthalmic Surgery	Mr. Cowell
Aural Surgery	Mr. Keeno
Dental Surgery	Mr. Walker
Comparative Anatomy	Mr. Carter Blako
Natural Philosophy	Mr. Brooke, F.R.S.

UNIVERSITY COLLEGE HOSPITAL, LONDON.

The college, situate in Gower Street, W.C., prepares students specially for the examinations of the University of London. Aggregate fee for medical instruction, 105*l*. 15*s*., payable in three instalments.

The Introductory Lecture will be given by Dr. John Williams, October 1, at 3 P.M.

LECTURERS.

Principles and Practice of Medicine	Prof. J. R. Reynolds, M.D., F.R.S.
Physiology	Prof. J. Burdon Sanderson, M.D., F.R.S. Prof. Edward A. Schäfer
Chemistry	Prof. Williamson, Ph.D., F.R.S. Charles Graham, D.Sc.
Anatomy	Prof. Thane
Comparative Anatomy and Physiology	Prof. Lankester, M.A., F.R.S.
Principles and Practice of Surgery	Prof. Marshall, F.R.S.
Practical Surgery	Prof. Berkeley Hill, M.B., F.R.C.S. Mr. Marcus Beck, M.S., M.D., F.R.C.S. A. E. Barker, F.R.C.S. Ireland
Dental Surgery	G. A. Ibbetson, F.R.C.S.
Botany	Prof. Oliver, F.R.S., F.L.S.
Midwifery and Diseases of Women	Prof. Graily Hewitt, M.D.
Pathological Anatomy	Prof. H. C. Bastian, M.A., M.D., F.R.S.
Medical Jurisprudence	Prof. Maudsley, M.D.
Materia Medica and Therapeutics	Prof. Ringer, M.D.
Mental Diseases	W. H. O. Sankey, M.D.
Ophthalmic Medicine	Prof. Wharton Jones, F.R.S.

State Medicine	Prof. Corfield, M.A., M.D.
Clinical Medicine	Sir Wm. Jenner Dr. J. R. Reynolds Dr. Wilson Fox Dr. Sidney Ringer
Clinical Surgery	Prof. Marshall Prof. Berkeley Hill Prof. C. Heath

THE BRISTOL MEDICAL SCHOOL.

This is now conducted as a department of the newly-constituted University College, Bristol. Buildings are being erected for the college in Tyndall's Park, but until their completion the Medical School will occupy its former premises in Old Park. In connection with the school are the Bristol Royal Infirmary (founded in 1735), with 250 beds, and the Bristol General Hospital (founded in 1832), containing 154 beds. The next winter session commences October 1, 1877. Composition fee for all classes at the Medical School, 60 guineas. Hospital practice extra.

Lecturers.

Medicine and Pathological Anatomy	W. H. Spencer, M.A., &c. E. M. Skerritt, M.D. Lond., &c.
Surgery	R. W. Coe, F.R.C.S. R. W. Tibbits, M.B., &c.
Anatomy	N. C. Dobson, F.R.C.S. H. Waldo, M.D. W. E. Cant, F.R.C.S.
Physiology	G. F. Atchley, M.B., &c. R. S. Smith, M.D. Lond., &c.
Chemistry	T. Coomber, F.C.S.
Midwifery and Diseases of Women and Children	J. G. Swayne, M.D.
Medical Jurisprudence	W. P. Keall, L.R.C.P., &c.
Materia Medica and Therapeutics	G. F. Burder, M.D., &c.
Botany	A. Leipner
Comparative Anatomy	G. F. Atchley, M.B., &c.

THE LEEDS SCHOOL OF MEDICINE

Was founded in 1830. It is in connection with the Royal Infirmary, which has accommodation for 300 patients. The average annual number of out-patients is 13,000. Composition fee for school lectures, 46*l.* 4*s.*; perpetual fee, hospital practice, and clinical lectures, 26*l.* 5*s.*

Introductory Address, by J. A. Nunneley, M.B., M.R.C.S., October 1, at 3.30 P.M.

Lecturers.

Anatomy	Robert T. Land, M.D., M.R.C.S. John A. Nunneley, M.B., M.R.C.S. Edmund Robinson, M.R.C.S. A. F. McGill, F.R.C.S. W. A. M. Robson, M.R.C.S.
Physiology	Chas. J. Wright, M.R.C.S. John Horsfall, M.A., F.R.C.S. James Walker, M.R.C.S., L.R.C.P.
Chemistry (at the Yorkshire College of Science)	Professor T. E. Thorpe, Ph.D., F.R.S.
Botany	Frederick Greenwood, M.R.C.S.
Materia Medica	Thomas Churton, M.D.
Pathology	A. F. McGill, F.R.C.S.
Medicine	John D. Heaton, M.D., F.R.C.P. T. Clifford Allbutt, M.A., M.D. John Edwin Eddison, M.D.
Surgery	T. R. Jessop, F.R.C.S. Edward Atkinson, M.R.C.S., F.L.S. C. G. Wheelhouse, F.R.C.S. T. P. Teale, M.A., F.R.C.S.
Midwifery	W. N. Price, M.R.C.S. James Braithwaite, M.D., M.R.C.S.
Forensic Medicine	Thomas Scattergood, M.R.C.S.
Mental Diseases	Herbert C. Major, M.D.

THE LIVERPOOL ROYAL INFIRMARY SCHOOL OF MEDICINE.

The building has recently been much enlarged and improved. During the last year an aggregate of 7,100 patients were relieved at the infirmary. The composition fee for attendance on all lectures and demonstrations, payable in two instalments, is 45 guineas; the perpetual hospital fee is 32 guineas; there are extras amounting to about 11 guineas.

Introductory Address, by Rushton Parker, F.R.C.S., September 29, at 3 P.M.

Lecturers.

Medicine	A. T. H. Waters, M.D.
Surgery	Rushton Parker, F.R.C.S.
Physiology	Richard Caton, M.D. Henry Ashby, M.B.
Anatomy	W. Mitchell Banks, F.R.C.S.
Pathology	A. Davidson, M.A., M.D.
Ophthalmology	T. Shadford Walker, M.R.C.S.
Chemistry and Toxicology	J. C. Brown, D.Sc. Lond.
Obstetric Medicine	A. B. Steele, L.K.Q.C.P.
Diseases of Children	R. Gee, M.D.
Materia Medica	J. B. Nevins, M.D.
Medical Jurisprudence	Ewing Whittle, M.D.
Botany	W. Carter, LL.B., M.B.
Comparative Anatomy	E. H. Dickenson, M.A., M.D.
Dental Surgery and Mechanics	J. Snape, L.D.S., R.C.S. R. E. Stewart, L.D.S., R.C.S.

QUEEN'S COLLEGE, BIRMINGHAM.

FACULTY OF MEDICINE.

Hospital instruction is given in the General and Queen's Hospitals, which together contain 390 beds. More than 4,500 in-patients and 45,000 out-patients are treated annually. Composition college fee, payable in two instalments, 50 guineas; for hospital practice for four years, in two instalments, 30 guineas. Further information may be obtained from the Reverend the Warden.

Lecturers.

Medicine	Balthazar Foster, M.D., F.R.C.P.
Surgery	O. Pemberton, F.R.C.S. Edin. Furneaux Jordan, F.R.C.S.
Anatomy	W. Thomas, M.B. Lond. R. Jolly, M.D., F.R.C.S. Edin.
Physiology	R. Norris, M.D. T. H. Bartlett, M.B. Lond., F.R.C.S. E. Rickards, M.A., M.B. Oxon., M.R.C.P.
Pathology	James Sawyer, M.D. Lond., M.R.C.P.
Chemistry and Practical Chemistry	A. C. Bruce, M.A., F.C.S.
Practical Anatomy	Bennett May, M.B., B.S. Lond., F.R.C.S. G. H. Evans, F.R.C.S.
Midwifery	John Clay, M.R.C.S. J. Bassett, M.D.
Diseases of Women and Children	S. Berry, F.R.C.S. R. C. R. Jordan, M.D. Lond.
Forensic Medicine and Toxicology	J. St. S. Wilders, M.R.C.S. A. C. Bruce, M.A., F.C.S. William Hinds, M.D., M.R.C.S.
Materia Medica and Therapeutics	Edward Mackey, M.D. Lond., M.R.C.P.
Operative Surgery	O. Pemberton, F.R.C.S. Edin. F. Jordan, F.R.C.S.
Ophthalmic Surgery	J. Vose Solomon, F.R.C.S.
Dental Surgery	T. Howkins, M.R.C.S.
Comparative Anatomy	T. Savage, M.D., F.R.C.S.

THE SHEFFIELD SCHOOL OF MEDICINE

Is connected with the General Infirmary, the Public Hospital and Dispensary, and the Hospital for Diseases of Women. The General Infirmary contains 180 beds. The fee for perpetual attendance at the medical and surgical practice is 35 guineas. The aggregate fee for medical instruction at the school, exclusive of hospital practice, is 40 guineas.

Introductory Address by Dr. H. French Banham, October 1, at 4 P.M.

Lecturers.

Anatomy, Descriptive and Surgical	Mr. Skinner Mr. E. Skinner
Demonstrations of Anatomy	Dr. E. Thomas Mr. Snell Mr. O. Barber
Physiology	Dr. Dyson Dr. O'Keefe
Principles and Practice of Medicine	Dr. De Bartolome Dr. Thomas Dr. Banham
Principles and Practice of Surgery	Mr. W. F. Favell Mr. A. Jackson
Chemistry	Mr. Allen
Dental Mechanics	Mr. G. Mosely
Practical Physiology	Dr. Gwynne
Midwifery and Diseases of Women	Dr. Hime
Materia Medica and Therapeutics	Dr. Young
Medical Jurisprudence and Toxicology	Mr. Baker Mr. Harrison
Botany	Mr. Birks
Dental Surgery	Dr. Merryweather
Comparative Anatomy	Mr. W. Jackson
Demonstrations of Pathology and Microscopy	The House Surgeon of the Infirmary
Demonstrations of Operative Surgery	Mr. Favell
Public Medicine	Dr. Drew
Ophthalmic Surgery	Mr. Snell
Clinical and Practical Surgery, and Clinical Medicine	The Staffs of the Infirmary and Public Hospital

Hon. Sec., who will supply further information, Arthur Jackson,
St. James's Row, Sheffield.

EDINBURGH SCHOOL OF MEDICINE.

The Inaugural Address will be delivered by Dr. John Duncan, October 30, at 11 A.M.

Minimum fee, 90*l.* 4*s.*

Lecturers.

Anatomy	Dr. P. D. Handyside
Chemistry	Dr. Stevenson Macadam Mr. J. F. King, Mr. I. Macadam
Surgery	Dr. P. H. Watson Mr. J. Bell Mr. Chiene Dr. Duncan
Institutes of Medicine	Dr. Andrew Smart
Clinical Medicine	Drs. R. Haldane, G. W. Balfour C. Muirhead Dr. M. Duncan
Clinical Surgery	Dr. P. H. Watson Mr. Annandale
Medical Jurisprudence and Public Health	Dr. Littlejohn
Practice of Physic	Dr. R. Haldane Dr. C. Muirhead
Natural History—Zoology and Comparative Anatomy	Dr. A. Wilson
General Pathology and Pathological Anatomy	Dr. J. Wyllie

Diseases of the Ear	Dr. K. Duncanson
Vaccination	Dr. Husband
Diseases of Children	Dr. R. P. Ritchie
Midwifery and Diseases of Women and Children	Dr. Keiller Dr. M. Duncan Dr. A. Macdonald Dr. Underhill Dr. H. Croom Dr. R. P. Ritchie
Diseases of the Skin	Dr. A. Jamieson
Diseases of the Eye	Dr. A. Robertson
Medical Anatomy and Practical Medicine	Dr. C. Muirhead
Insanity	Dr. J. B. Tuke
Syphilology	Dr. Cadell

ROYAL INFIRMARY, EDINBURGH.

Perpetual Hospital Tickets, 10l.

In this Hospital a portion of the beds is set apart for Clinical Instruction by the Professors of the University of Edinburgh. Courses of Clinical Medicine and Surgery are also given by the Ordinary Physicians and Surgeons. Special Instruction is given in the Medical Department on Diseases of Women, Physical Diagnosis, &c., and in the Surgical Department on Diseases of the Eye. Separate Wards are devoted to Fever, Venereal Diseases, Diseases of Women, Diseases of the Eye; also to cases of Incidental Delirium or Insanity. Post-mortem Examinations are conducted in the Anatomical Theatre by the Pathologist, who also gives practical instruction in Pathological Anatomy and Histology.

EDINBURGH UNIVERSITY MEDICAL SCHOOL.

The University was founded in 1582, but the Medical School dates only from the commencement of the eighteenth century. The number of matriculations in medicine is now about 700 annually. The faculty is composed of the undermentioned gentlemen:—

Materia Medica	Sir Robert Christison, M.D.
Chemistry	Dr. Crum Brown
Surgery	Prof. Spence
Medical Jurisprudence	Dr. Maclaglan
Institutes of Medicine	Dr. Rutherford
General Pathology	Dr. Sanders
Clinical Surgery	Prof. Lister
Clinical Medicine	Drs. Maclaglan and Sanders
Midwifery and Diseases of Women and Children	Prof. Simpson
Anatomy	Prof. Turner
Natural History	Sir C. Wyville Thompson
Practice of Physic	Dr. Grainger
Botany	Dr. J. H. Balfour

The minimum expenses for the medical instruction amount to 104l. 18s.; M.B. diploma, 15l. 15s. extra; C.M. diploma, five guineas more than M.B.; M.D. diploma, 15l. 5s. more than M.B.

ANDERSON'S UNIVERSITY, GLASGOW.

FACULTY OF MEDICINE.

Founded in 1796 by the will of Professor John Anderson, M.A., F.R.S. The fees for a complete course of medical instruction, extending over four years, amount to 36 guineas. A double qualification may be obtained in Glasgow, the diploma costing 16l.

LECTURERS.

Chemistry	Prof. Dittmar, F.R.S.E.
Surgery	Prof. Dunlop, M.D.
Anatomy	Prof. A. M. Buchanan, M.A., M.D.
Institutes of Medicine and Practical Physiology	Prof. D. C. M'Vail, M.B.
Materia Medica	Prof. Morton, M.D.
Practice of Medicine	Prof. Charteris, M.D.
Ophthalmic Medicine	J. R. Wolfe, M.D., F.R.C.S.E.
Midwifery	Prof. J. G. Wilson, M.D., &c.
Medical Jurisprudence	Prof. A. Lindsay, M.D.

THE ROYAL INFIRMARY SCHOOL OF MEDICINE, GLASGOW.

The Hospital contains 571 beds. The number of in-patients last year was 5,615; of out-patients, 16,586. The number of operations was 327. The winter session commences October 30, 1877. Fee, hospital practice (perpetual) 21l.; classes and demonstrations, 31l. 10s.

LECTURERS.

Chemistry	J. Clark, Ph.D.
Anatomy	H. C. Clark, M.R.C.S.E.
Physiology	W. T. Fleming, M.B.
Surgery	H. C. Cameron, M.D.
Medicine	A. W. Smith, M.D.
Materia Medica	J. Dougall, M.D.

GLASGOW UNIVERSITY MEDICAL SCHOOL.

Class fees for each course, three guineas, except lectures on the eye; hospital practice, life fee, 21l.

Introductory Discourse by Professor Ferguson, M.A., October 30, 1877.

LECTURERS.

Clinical Medicine*	Prof. M'Call Anderson
Clinical Surgery*	Prof. G. Buchanan
Chemistry	Prof. Ferguson
Anatomy	Prof. A. Thomson
Practice of Physic	Prof. Gairdner
Materia Medica	Prof. Cowan
Institutes of Medicine and Physiology	Prof. M'Kendrick
Surgery	Prof. Macleod
Midwifery	Prof. Leishman
Zoology	Prof. Young
Forensic Medicine	Prof. P. A. Simpson
Practical Pharmacy	Dr. Tennent
Botany	Prof. A. Dickson
Lectures on the Eye	Dr. T. Reid

* The Clinical Lectures of the other Physicians and Surgeons of the Western and Royal Infirmaries are accepted by the University Court as qualifying for graduation.

CARMICHAEL SCHOOL OF MEDICINE, IRELAND,

Formerly called Richmond Hospital School, is in immediate proximity to the Richmond, Whitworth, and Hardwicke Hospitals, which, together, form the House of Industry Hospitals, and contain an aggregate of 512 beds.

Aggregate fee (for lectures only), 56l. 3s. 6d., payable in two instalments. Hospital practice extra.

The session commences October 1.

LECTURERS.

Surgery	A. H. Corley, M.D., F.R.C.S., &c.
Practice of Medicine	Samuel Gordon, M.A., M.D., &c. John Wm. Moore, M.D., &c.
Anatomy	Christopher Gunn, M.D., &c. Wm. M. A. Wright, M.B., &c.
Physiology	Reuben J. Harvey, M.D., &c.
Institutes of Medicine	Stewart Woodhouse, M.D., &c.
Midwifery	Wensley B. Jennings, B.A., &c.
Chemistry	C. R. C. Tichborne, Ph.D., &c.
Ophthalmic Surgery	C. E. Fitzgerald, M.D., &c.
Botany	E. B. Blakeley, L.R.C.S., &c.
Materia Medica	George F. Duffey, M.D., &c.
Medical Jurisprudence	Hugh Auchinleck, L.R.C.S., &c.

QUEEN'S COLLEGE, BELFAST.

FACULTY OF MEDICINE.

This college (founded in 1845) is one of the Colleges of the Queen's University, Ireland. Regulations and fees as in the Galway College.

Natural Philosophy	Joseph David Everett, M.A., D.C.L.
Chemistry	Thomas Andrews, M.D., LL.D., F.R.S., M.R.I.A., Hon. F.R.S.E.
Natural History and Geology	Robt. O. Cunningham, M.D., F.L.S.
Anatomy and Physiology	Peter Redfern, M.D., F.R.C.S.
Medicine	James Cuming, M.A., M.D., F.K.Q.C.P.
Surgery	Alexander Gordon, M.D.
Materia Medica	James Seaton Reid, M.D.
Midwifery	Robert F. Dill, M.D.

QUEEN'S COLLEGE, CORK.

MEDICAL FACULTY.

Lectures commence November 1, 1877. Fee, exclusive of Hospital Practice, 35 guineas.

LECTURERS.

Chemistry	M. Simpson, B.A., &c.
Natural History	J. R. Greene, B.A., &c.
Geology and Mineralogy	R. Harkness, F.G.S., &c.
Anatomy and Physiology	J. J. Charles, M.A., &c.
Medicine	D. C. O'Connor, B.A., &c.
Surgery	W. K. Tanner, M.D., &c.
Materia Medica	M. O. Keefe, M.A., &c.
Midwifery	J. R. Harvey, B.A., &c.

QUEEN'S COLLEGE, GALWAY.

FACULTY OF MEDICINE.

The college was founded in 1845, and is one of the three included in the Queen's University, Ireland. We believe that no special facilities are offered for hospital work. The first term of the session, 1877–78, commences October 16. Minimum fees for the degree of M.D., 39l. 5s.

PROFESSORS AND LECTURERS.

Natural Philosophy	Arthur Hill Curtis, LL.D.
Chemistry	Thomas H. Rowney, Ph.D.
Natural History	Alexander G. Melville, M.D. Edin., M.R.C.S. Edin.
Anatomy and Physiology	John Cleland, M.D., F.R.S.
Practice of Medicine	Nicholas Colahan, M.D.
Practice of Surgery	James V. Browne, M.D., L.R.C.S.I.
Materia Medica	Joseph P. Pye, M.D., M.Ch.
Midwifery	Richard John Kinkead, B.A., M.D.
Medical Jurisprudence	Joseph P. Pye, M.D., M.Ch.

DR. STEEVENS' HOSPITAL AND MEDICAL COLLEGE, DUBLIN.

Composition fee for lectures, 56l. 3s. 6d.; hospital practice, 12l. 12s. per year (of 9 months).

LECTURERS.

Materia Medica and Therapeutics	Dr. Grimshaw
Surgery	W. Colles, E.P.R.C.S.I.
Anatomy and Physiology	Dr. Hamilton R. Booker, M.B., &c. F. W. Warren, F.R.C.S.I.
Medical Jurisprudence	Dr. Tweedy
Midwifery	Dr. Isdell
Chemistry	Dr. McHugh
Botany	Mr. Warren

CATHOLIC UNIVERSITY OF IRELAND SCHOOL OF MEDICINE.

The school is situated in Cecilia Street, Dame Street, Dublin. Fees, three guineas each course of lectures. Practical Chemistry and Dissection, five guineas. The Session commences on October 1 with Practical Anatomy. An Inaugural Address will be delivered by Dr. Byrne.

LECTURERS.

Anatomy and Physiology	Thomas Hayden, F.K.Q.C.P.I., &c. Robert Cryan, F.K.Q.C.P.I., &c.
Chemistry	John Campbell, M.B., &c.
Surgery	H. J. Tyrrell, F.R.C.S., &c.
Medicine and Pathology	R. D. Lyons, B.M., &c.,
Midwifery	J. A. Byrne, B.A., M.B., &c.
Materia Medica	F. J. B. Quinlan, B.A., M.D.
Medical Jurisprudence	S. M. Macswiney, M.D., &c.
Botany	G. Sigerson, M.D., &c.
Natural Philosophy	G. Molloy, D.D.
Logic	D. B. Dunne, Ph.D.
Ophthalmology	P. J. Hayes, L.R.C.S.I., &c.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

SCHOOL OF SURGERY.

Introductory Lecture, October 29, by Dr. C. A. Cameron.
Composition fee (without hospital practice), 56*l*. 17*s*. 6*d*.

LECTURERS.

Anatomy and Physiology	Dr. Mapother
Descriptive Anatomy	Dr. Bevan Mr. Thornley Stoker
Surgery	Mr. J. Stannus Hughes Mr. Stokes
Practice of Medicine	Dr. James Little
Chemistry and Hygiene	Dr. Cameron
Midwifery	Dr. Roe
Materia Medica	Mr. Macnamara
Medical Jurisprudence	Dr. Davy
Botany	Dr. Minchin
Ophthalmic and Aural Surgery	Mr. Swanzy

THE DENTIST PROFESSION.

THERE are no legal barriers surrounding this profession. But to take a high position in the profession, and to command the respect of its members and of the general public, necessitates a course of study quite as severe as that required for any medium degree in the medical profession proper. Of the Dentists practising in London, the majority have no diploma or official qualification. Many are Members or Fellows of the Royal College of Surgeons, and a minority are Licentiates in Dental Surgery. The studies required for M.R.C.S. and F.R.C.S. have already been noticed, and are not confined to Dentists. We believe that the Royal College of Surgeons is the only body which grants diplomas for Dental Surgery only, but instruction in matters relating to the teeth is afforded at almost all the medical schools. The one diploma of the Royal College of Surgeons carries the title just mentioned of Licentiate in Dental Surgery (L.D.S.), and may be acquired alone or in conjunction with the Membership of the College. The fee for the diploma is ten guineas, plus stamp duty. Candidates for examination are required to produce certificates:—

1. Of being 21 years of age. 2. Of having been engaged during four years in the acquirement of professional knowledge. 3. Of having attended at a School or Schools recognised by this College, not less than one of each of the following Courses of Lectures, delivered by Lecturers recognised by this College, namely:—Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica. 4. Of having attended a second Winter Course of Lectures on Anatomy, or a course of not less than twenty Lectures on the Anatomy of the Head and Neck, delivered by Lecturers recognised by this College. 5. Of having performed Dissections at a recognised School during not less than nine months. 6. Of having completed a course of Chemical Manipulation, under the superintendence of a Teacher or Lecturer recognised by this College. 7. Of having attended at a recognised Hospital or Hospitals in the United Kingdom the Practice of Surgery and Clinical Lectures on Surgery during two winter sessions. 8. Of having attended at a recognised School two Courses of Lectures upon each of the following subjects, viz.:—Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one Course of Lectures on Metallurgy, by Lecturers recognised by this College. 9. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner. 10. Of having attended at a recognised Dental Hospital, or in the Dental department of a recognised general Hospital, the Practice of Dental Surgery during the period of two years.

N.B.—The Students of the London Schools are required to register the above Certificates at this College; and special Returns will be required from the Provincial Schools.

Candidates who commence their professional studies after October 1, 1877, that is to say, who register themselves as Medical Students after that date, will have to produce certificates of having passed a Preliminary Examination like that required for other diplomas.

The examination for the diploma covers the ground indicated below. It is partly written and partly oral.

The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with especial reference to the Practice of the Dental profession.

The oral practical examination comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c.

Members of the College, in the written examination, will only have to answer those questions set by the section of the Board consisting of persons skilled in Dental Surgery; and in the oral examination will be examined only by that section.

A candidate whose qualifications shall be found insufficient will be referred back to his studies, and will not be admitted to re-examination within the period of six months, unless the Board shall otherwise determine.

Examinations are held in January and June.

We believe that the only place at which the whole of the necessary course of instruction can be obtained is at the London School of Dental Surgery in connection with the Dental Hospital, Leicester Square.

DENTAL HOSPITAL AND SCHOOL OF DENTAL SURGERY, LONDON.

The hospital, situate in Leicester Square, was founded in 1859, and has now nearly ninety students upon the books. Composition fee, 30 guineas.

LECTURERS.

Dental Surgery and Pathology	S. H. Cartwright, L.D.S., &c.
Dental Anatomy and Physiology	C. S. Tomes, M.A., &c.
Mechanical Dentistry	J. S. Turner, M.R.C.S., &c.
Dental Metallurgy	G. H. Makins, F.C.S., &c.

SCIENTIFIC EDUCATION.

A SWORD hard fixed in its scabbard is of little use, and the soldier might as well be without it. So knowledge that cannot be readily produced is useless, and might as well be ignorance. Perhaps of all the qualifications needful to passing an examination, this power of the prompt delivery of information, when, where, and how required, is the most important, and receives the least attention. Yet, although in some cases natural, it is almost entirely acquired, and the difference between the prize-taker and the "wooden spoon" may quite possibly be that the one has practised the expression of his thought, while the other has not done so.

If the sword be occasionally drawn, it will never be so firmly fixed as to fail its owner in a time of need. So if the student at intervals writes down *the whole* of his information on a given subject, he will never be at a loss before the fiercest of examiners. Students are often advised to get some friend to propound questions for them to answer. This plan would be excellent were it not for the inherent indolence of mankind. Supposing an ordinary well-informed student has a paper of questions placed in his hand. He will glance down it, and, as he reads one after another, he will say, "Oh, I know that; no need to write anything about it." Yet, very probably, if he had those same questions at an examination, he would find that what he knew about it was vague, unsatisfactory, and hardly expressible in words. Something besides the mere desire to get on is needful to make the student go through the mechanical drudgery of writing full and complete answers to questions which he thinks he knows. This something is to be found in the emulation and excitement of public examinations. To serve the purpose in the best way possible, the examination should be sufficiently stiff to force the student to exert his whole powers; there should be a gradation in severity; the object to be gained should be of sufficient value, and the interests at stake should not be too costly. All these items are to be found in the examinations of the Science and Art Department.

These examinations are held at 7 P.M. in numerous local centres all over the kingdom during the month of May. The maximum fee charged to the examinee is 1*s.* Government certificates are given to each successful competitor and to students who belong to affiliated classes Queen's prizes of small value are presented. The examination in each subject is divided into three stages—Elementary, Advanced, and Honours—increasing in severity in geometrical proportion. Students who succeed in passing the Advanced or Honours examinations are qualified to become science teachers, and to earn payments on the results of their teaching.

Among the twenty-seven subjects in which examinations are instituted the most pertinent to the studies of a pharmaceutical student are chemistry and botany. Anyone able to pass the Advanced stage of these two examinations, if he possesses an equivalent knowledge of the subjects from a pharmaceutical point of view, may face the examiners at Bloomsbury without a tremor.

Students would also find it useful in giving them self-reliance and readiness in oral examinations to take the teacher's certificate and organise a committee and class according to the regulations laid down in the "Science Directory." In almost any place a young man with a little push can collect a tolerable class, and as the results of one night's labour a week for eight months may pocket about September from 5*l.* to 15*l.*, according to his success, while at the same time he will have gained more than the worth of the money in thorough familiarity with his subject, and in coolness and steadiness before an audience. For, in reality, public speaking is closely allied to oral examination. In both cases there is a critical audience—in one case a single examiner, in the other a multitude. Full information as to these and other classes is contained in the "Science and Art Directory," price 6*d.*

In the case of these examinations students are supposed to be privately prepared, or in the classes of some provincial institution, such as a mechanics' institute or free library. There are other institutions or public schools where courses in the higher branches of scientific education may be obtained without the formalities or expenses of a University course. Such institutions are the Royal College of Chemistry, South Kensington; the Royal School of Mines, Jermyn Street; the Royal College of Science, Dublin; the Yorkshire College of Science, Leeds; the Owens College, Manchester, and others. In most of these single classes can be attended, but if the student desires a complete course of instruction a preliminary examination of some kind is required.

THE UNIVERSITY OF LONDON DEGREES IN SCIENCE.

The London University grants degrees in Science, which are highly esteemed. They are Bachelor and Doctor in Science. We give a summary of the regulations:—

B.Sc. Lond.

For this degree the candidate must have passed the Matriculation Examination at least one academical year (in this case about sixteen months) before presenting himself for examination. He must then pass two examinations, entitled the First and Second B.Sc. Examinations. The First B.Sc. Examination is held on the third Monday in July, and extends over two weeks. The fee is 5*l.*, and before entering the student must produce a satisfactory certificate of good conduct. Candidates are examined in Pure Mathematics (Arithmatic, Algebra, Geometry, and Trigonometry), Mixed Mathematics, Inorganic Chemistry, Experimental Physics (Acoustics, Heat, Magnetism, Electricity, and Optics), General Biology. During the second week the candidate is examined practically in Chemistry and Biology. Candidates must show a competent knowledge of all these subjects. After passing the first B.Sc. Pass Examination, the candidate may be examined for honours in Mathematics, Experimental Physics, Chemistry, Botany, and Zoology, or in either. These examinations enter more fully into the subjects of the Pass Examinations.

The Second B.Sc. Examination is held on the third Monday in October in each year. Fees and regulations are the same as for the first examination. Candidates are required to show a competent knowledge of any three of the nine following subjects:—1. Pure Mathematics (Algebra, Trigonometry, Geometry, Differential Calculus, and Integral Calculus); 2. Mixed Mathematics (Dynamics and Astronomy); 3. Experimental Physics (Acoustics, Heat, Optics, Magnetism, and Electricity); 4. Chemistry (Inorganic and Organic), with practical Qualitative Analysis; 5. Botany (Histology, Morphology, Physiology, and practical dissection and description; 6. Zoology, with practical examination and dissection; 7. Animal Physiology, with practical examination; 8. Physical Geography and Geology, and practical examination; 9. Logic and Psychology.

On passing the requisite examination a certificate with the seal of the university is presented to each candidate. Candidates may also be examined for honours in any subjects they select.

Doctor of Science.

The examination for this degree takes place during the first three weeks of June in each year. Candidates must have obtained the degree of B.Sc. at least two academical years previously. The fee is 10*l.*, payable on or before April 1 of the year in which the candidate intends to present himself for examination. The candidate is examined in any one of the sixteen following branches. He must be so fully acquainted with the "principal subject" (to be selected by himself) as to be able to go through any examinational test of his acquirements that can be fairly applied. He must also show a general acquaintance with the subsidiary subject or subjects of the selected branch. The branches are:—

1. Pure Mathematics; 2. Mechanical Science; 3. Astronomy; 4. Inorganic Chemistry; 5. Organic Chemistry; 6. Electricity; 7. Magnetism; 8. Physical Optics, Heat, Acoustics; the above are grouped under Physical Science. 9. Animal Physiology; 10. Comparative Anatomy; 11. Zoology; 12. Vegetable Physiology; 13. Systematic Botany; are included under Biological Science. Geological and Palæontological Science: 14. Geology; 15. Palæontology; 16. Mental Science, Logic and Moral Philosophy.

Full information, syllabus, and specimens of examination papers are given in the "Calendar," published yearly. Price 4*s.*

THE YORKSHIRE COLLEGE OF SCIENCE, LEEDS.

This institution is intended to promote scientific education among the manufacturing classes. There is a special department for instruction in matters concerning the Textile Industries, which is endowed by the London Clothworkers' Company. Besides these, instruction is given in Mathematics, Experimental Physics, Chemistry—Theoretical and Practical, Geology and Mining, Biology, Zoology, Civil and Mechanical Engineering, Classical and Modern History, and Literature and Botany. Various scholarships are offered, and the College holds endowments for providing courses of lectures in other towns. The title of Associate in Physical Science is conferred on students who attend classes in not less than three of the following departments for two entire sessions each, and who pass a special examination in each class at the end of their curriculum. The departments are: Mathematics, Physics, Chemistry, Geology, Biology, and Civil and Mechanical Engineering. Entrance fee to the college, 1*l.* 1*s.*; use of library, 2*s.* 6*d.* per session. Each class has separate fees. The College Calendar (6*d.*) contains full information as to classes, fees, &c.

PROFESSORS.

Mathematics and Physics	Prof. A. W. Rücker, M.A.
Chemistry	Prof. T. E. Thorpe, Ph.D., F.R.S.
Geology and Mining................	Prof. A. H. Green, M.A., F.G.S.
Biology, Zoology, and Botany	Prof. L. C. Miall, F.G.S.
Engineering	Prof. G. F. Armstrong, M.A., F.G.S., C.E.
Classical Literature and History....	Prof. J. Marshall, M.A.
Modern Literature and History	Prof. F. S. Pulling, B.A.
Textile Industries Department......	Mr. John Beaumont

ROYAL COLLEGE OF SCIENCE FOR IRELAND (DUBLIN).

SCIENTIFIC AND TECHNICAL EDUCATION.

This college supplies a complete course of instruction in science, applicable to the industrial arts, especially those which may be classed broadly under the heads of chemical manufactures, mining, and engineering. A diploma of Associate of the college is granted at the end of the three years' course.

The fees are 2*l.* for each course, or 10*l.* for all the courses of each year, with the exception of laboratory practice. The session commences on October 1.

PROFESSORS.

Chemistry, Metallurgy, &c.........	Prof. Galloway, F.C.S.
Mathematics, Mechanics, and Mechanism	Prof. Hennessy, F.R.S.
Descriptive Geometry, Drawing, Engineering, and Surveying......	Prof. Pigot, C.E., &c.
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The College was opened in January, 1868, for the purpose of giving to the working men of South London and their families the means of a thorough education. It provides this education at the smallest possible expense, the management being entirely unpaid, and the teaching either wholly or nearly so. The classes are open alike to men and women. Attached to the college are night schools for men and women.

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Principal—Prof. Williams.

THE POSTAL SYSTEM.

The postal system has become a prominent feature among the educational arrangements offered to pharmaceutical students. It affords an excellent means of ensuring systematic study during the years of apprenticeship. We have two prospectuses of the Postal System before us. One is issued by the Westminster College of Chemistry and Pharmacy, Lambeth Road, and is known as Wills' system. A course of 100 lectures is provided for the Preliminary (fee, half a guinea), 150 lectures for the Minor (fee, one guinea), and 100 lectures for the Major (fee, one guinea). These lectures are sent one, two, three, or four per week. Minor students receive also autograph prescriptions, dried plants, the parts of Bentley & Trimen's plants, &c.

The other system is provided by Mr. John Tully, chemist, Tunbridge Wells. This system offers a course for the Preliminary (fee, half a guinea), and a course of 36 lectures for the Minor (fee, one guinea). Autograph prescriptions, botanical specimens, and coloured plates also are sent.

THE RANGE OF THE HOMŒOPATHIC LAW IN THE PRACTICE OF MEDICINE.

By W. B. A. Scott, M.D.

I DO not wish to make this a controversial paper, and, of course, no one except myself stands in any degree committed by anything it contains. My object is simply to give such a sketch of homœopathy as may serve to indicate the existing relations between the homœopathic and "orthodox" schools, the extremely small divergence, either in theory or practice, between the most enlightened and advanced members of each, and the consequent anachronism of anything approaching to hostility or even exclusiveness on the part of either towards the other at the present day.

The scientific basis of homœopathy I have always regarded as to be sought in the law of reaction—a law of the operation of which there can be no question, although the extent of its direct practical applicability in any particular case or class of cases is a perfectly legitimate subject of discussion, and one which is very far indeed from being as yet determined. For example, no one denies that the ordinary effect of a cold bath on a healthy man is the almost immediate production of a genial glow of warmth, and this would be generally admitted to be an instance of the reactive power of the animal body; but no one has on that account been so foolish as to assert that our fire-places ought to be replaced by tubs of iced water, or even that the amount of the subsequent warmth experienced by the bather is in direct proportion to the number of degrees by which the water in which he bathed was colder than his own body, however great or small this number may have been. Again, in the mental and moral world, in which the law of reaction strikingly prevails, we all well know how a simulated opposition is very generally the best method of inducing our neighbours to adopt any particular course; for instance, how the opposition so commonly made to the wish of a boy to go to sea results in stimulating the youngster's naval zeal to its highest pitch, until he either runs away from home or else makes his home so uncomfortable for everybody else that his parents are only too thankful to get rid of him at any price. We may remember, too, how Iago inflames the jealousy of Othello by his pretended defence of Desdemona: "Strain not my speech to grosser issues nor to larger reach than to suspicion." . . . . "Nay, this was but his dream" . . . . "pray, be content" . . . . "patience, I say," &c. But no one, I suppose, will maintain that this principle —a principle very much resembling that on which the Irishman is said to have driven his refractory pig to market by means of pulling it backwards by the tail—furnishes the entire basis of the whole theory of moral suasion, or that the rational method of "training up a child in the way he should go" consists in the uniform denunciation of virtue and laudation of vice. The law of reaction I believe to be one of the fundamental laws of life—perhaps its characteristic—whether in its physical, mental, or moral developments; but still there are countless other laws, which, whether we regard them as derivatives of this or as distinct in themselves, require to be duly taken into account in all endeavours to influence the body or mind of man for good or for evil. Moreover, the direct operation of the law of reaction itself is not always what might *à priori* have been expected—sometimes exactly the reverse—just as it is owing to the same law of gravitation that a stone falls, while a balloon rises, through the air. Clearly no one psychological law, however wide or even fundamental, can form the exclusive basis of any practical system of mental or moral training, and no one physical law, however wide or even fundamental, can form the exclusive basis of any practical system of mechanics. And even when a fundamental law itself is directly susceptible of some practical application, it will lead to false results if not modified in accordance with the exigencies of the particular case in point. Thus the theoretical properties of the lever are true only of an imaginary bar which is destitute of weight; and, in the actual construction of any existing lever, will give erroneous results, unless the necessary modifications are borne in mind.

All this applies with at least equal force to the practice of medicine, where the conditions are not only complex in the extreme, but very imperfectly understood. In drug medication, in particular, we know very little either of the drugs we administer or of the frame to which they are administered, to say nothing of the concurrent influence of extraneous circumstances, such as mental states, atmospheric conditions, in fact, the patient's "surroundings" generally. Such being the case, how can it possibly be expected that any one law, however extensive and radical, can afford precise indications in all cases of this department of medical practice? Nay, that, as in one of the instances referred to above, it shall not, sometimes at least, appear to be not merely modified but reversed?

The re-active power of the organism seems singularly well illustrated by the influence of drugs. It is now pretty generally admitted that in many, if not in all, cases the action of a small dose of a drug is the direct opposite of the action of the same drug in large doses. Take, for example, alcohol and opium, where this double action will not be disputed. Does not this seem to indicate that in the former case (that of small doses) the re-active powers of the organism have been stimulated to counteract, and more than counteract, the direct influence of the drug; while, in the latter case, the force of the larger dose is such as to overcome the re-active powers of the organism, and to produce, in their despite, the characteristic effects of the drug? Just as a glow of genial warmth results from a plunge in moderately cold water, while death from cold may be the consequence of prolonged exposure to Arctic snows.

The question now arises whether, in drug administration, we ought, as a rule, to aim at producing the characteristic effects of a drug, thereby crushing (for a time) the re-active powers of nature; or whether we ought not rather, as a rule, to seek to call forth the energy of those re-active powers. If the latter of these alternatives be adopted, we shall not only practise in accordance with the homœopathic law (where any general pharmaco-dynamical law is directly applicable), but we shall also necessarily administer small, though I am far from saying infinitesimal, doses. And that the second alternative ought to be adopted seems to me clear from the following consideration: the re-active powers of nature beginning to assert themselves as the effects of a large dose of any drug are gradually passing away, the last state of the patient is worse than the first, as is well illustrated by the results of the administration of purgatives in cases of habitual constipation. Here, it is generally admitted, the constitutional tendency is aggravated by such a practice. So, too, in the habitual use of opiates for procuring sleep, and in the administration of alkalies to remove gastric acidity. We have high "orthodox" authority for the administration of many drugs on homœopathic principles: that of Professor Ringer for iodine, ipecacuanha, acids and alkalies generally, and some others; while Burness and Mavor almost go so far as to assert that all drugs ought to be given on these principles. The only question, therefore, between us, is as to the extent to which the homœopathic law is applicable in practice.

Now, as I have not the most distant right to constitute myself the spokesman of the homœopathic party, I can merely give my own opinion on the subject. I think we ought to endeavour to practise in accordance with the homœopathic law when we have before us (*a*) a general pathological condition which we desire to remove *in toto*, and (*b*) a drug capable of producing in the healthy body a similar morbid state. Evidently, if the law of reaction holds good at all, a small (I do not say infinitesimal) dose of this drug will here call into play precisely those re-active powers in the organism which are adapted to remove this pathological condition. There are, certainly, other cases where a drug may be successfully employed for the removal of merely a single symptom to which it is homœopathic; thus Professor Ringer has successfully treated the vomiting of pregnancy by means of ipecacuanha, but I do not think that in such cases as these the homœopathic law will very generally be found applicable. In fact, in some such cases, I think direct "allopathic" medication to be called for. For instance, take the case of an individual of a relaxed habit of body suffering from an accidental attack of constipation. Here I should advise the administration of a purgative, because I should feel that while this would remove his present uneasiness, the reaction it would subsequently call forth would necessarily be beneficial rather than otherwise. Besides all this, supposing a man of good general health, but temporarily suffering from the *malaise* consequent on an accidental costiveness (the result, perhaps, of some error in diet), were to consult me, I, at least, should feel no hesitation in ordering him a dose of salts, or the like. Many similar cases occur in which direct "allopathic" medication seems to be indicated.

But in a very large proportion of cases, neither homœopathy nor allopathy will give us any help, as, for instance, those calling for "analeptic" treatment by cod-liver oil, &c. Again, it would be difficult to apply hydropathy or electricity on the law either of opposites or similars. Furthermore, in the case of intestinal worms, or of parasitical skin diseases, our object must simply be to destroy and remove the parasite which occasions the disease, by means as little as possible injurious to the human frame. Lastly, much of our treatment must long remain empirical; that is to say, experience has shown certain drugs to be useful in the treatment of certain diseases, but the precise relation of the said drugs to the said diseases—whether homœopathic, allopathic, enantiopathic, or what—remains to be discovered.

Owing to the unfortunate tendency which still prevails in some quarters wilfully or ignorantly to confound homœopathy with Hahnemannism, it here becomes necessary to say a few words about the doctrines of Hahnemann, and some of his earlier disciples, respecting blood-letting and local treatment. As to the first of these, there is now but little difference of opinion between the leaders of the "orthodox" school and the homœopathists; while none of the latter is bound to deny that bleeding may be occasionally useful in the way sanctioned by the late Professor Hughes Bennett, viz., not on the antiphlogistic principle, but as a means of affording mechanical relief where the heart, owing to its state of venous engorgement, has become incapable of contracting on its contents. With regard to the latter, the deprecation of local treatment, so far from being an innovation of Hahnemann's, is at least as old as the time of Zamolxis, but, be it ancient or modern, it must be conceded that the denunciation of the practice *in toto* resulted from an imperfect acquaintance with pathology. For this imperfection Hahnemann is in no way answerable, as the science may almost be said to have sprung up since his death, but the later homœopathists, enlightened by the discoveries of modern research, have long recognised this defect in Hahnemann's teaching, which they are no more bound to defend or adopt than their "orthodox" brethren are bound to sanction certain discarded doctrines of Hunter. In any case, it has no necessary connection with the doctrine of homœopathy, which doctrine, and not Hahnemannism, is the subject of debate. Similar remarks apply to the famous "psora" doctrine, be it in any degree true or be it wholly false; but it is only fair to Hahnemann to repeat that he has been most unjustly and inconsistently treated regarding it. At one time he has been denounced for introducing an absurd novelty; at another reviled as a mere plagiarist. The doctrine was sneered at by Sir James Simpson and others as the itch-doctrine of the homœopathists, while, on the other hand, Schönlein, of Berlin, tells us,—"Among the older physicians we particularly notice Autenreith, who wrote a masterly treatise on this subject, so that it was particularly impudent in Hahnemann to pretend that he was the first to point out the consequences of the itch." The fact is, the doctrine, under various names, is of unknown antiquity. We find traces of it even in classical Hindoo medicine—something very similar is referred to by Paracelsus as tartar; and so far was Hahnemann from claiming to be its discoverer that he adduces nearly 100 of his predecessors as having been more or less convinced of its truth.

I think it clearly appears that in recognising the law of similars as in many cases a valuable auxiliary in drug selection, the homœopathists have merely anticipated the doctrines of the now existing orthodox school by some sixty years; and that although this priority of discovery can hardly avoid giving rise to some natural feelings of jealousy on the part of the latter, the present coincidence of opinion and practice ought to banish all exclusive or sectarian prejudices. But it must, in fairness, be admitted that a detail of practice remains to be discussed, which, although it has nothing whatever to do with homœopathy, still presents a point of contrast between the practice of many homœopathists and that of their "orthodox" brethren. I allude to the occasional administration by some of the former of drugs in what have been called "infinitesimal doses."

Now, in the first place, this has nothing whatever to do with the homœopathic law, and a physician may be a perfectly consistent homœopathist who is an utter disbeliever in the efficacy of "infinitesimal" doses. The doses of drugs given in accordance with the law of similars must indeed evidently be less than those necessary to produce their physiological action, but Burness and Mavor consider this ought to be the general rule of drug administration, and in the writings of Professor Ringer we may notice how strong the feeling is on the part of the leaders of the "orthodox" party in favour of the diminution of the dose. How far this diminution must proceed is matter of direct experimentation in the case of each drug, and, in fact, of each patient, as the susceptibility of different individuals to the action of special drugs varies greatly. In the next place, those who believe in the occasional efficacy of "infinitesimal" doses are by no means required to base their belief on the celebrated "dynamization" theory of Hahnemann. This theory was rejected by the late Professor Henderson himself, and it must be admitted that Hahnemann was far from being uniformly felicitous in his theoretical explanations, and still more in his illustrations. Those who admit the efficacy of such doses accept this simply as a fact, inexplicable, perhaps, but demonstrated, in their opinion, by results which they believe themselves to have witnessed. This distinction is of real importance. For example, anyone who should seek to account for some of the alleged phenomena of "spiritualism" on the supposition that they are to be attributed to the direct agency of denizens of the unseen world would, in all probability, have his judgment arraigned by the majority of thinking men. But it would be extremely rash on this account to impute either to folly or to imposture a candid admission that certain phenomena have been occasionally witnessed at *séances* of which it is difficult or impossible to give any explanation. To admit a fact of which we believe ourselves to have witnessed the occurrence is one thing, and the admission is, at worst, merely such an error as the wisest of us is liable to fall into; to insist on any particular explanation of such a fact is quite another thing, and may be a proof of the last degree of rashness and credulity. If men had always refused their belief to all phenomena of which they were unable to give the *rationale*, the range of human knowledge would have been considerably more limited than it is at the present day.

A priori anticipations are, no doubt, hostile to a belief in the efficacy of "infinitesimal" doses; but, in scientific matters, *à priori* reasoning ought to possess but little weight, and, where observation is possible, the former is next to worthless. Now, of those who have made personal trials of the matter, and have witnessed the results of treatment by means of "infinitesimal" doses, either in homœopathic hospitals, dispensaries, or private practice, the large majority feel convinced that in some instances such doses have manifested a curative effect. Of course these observers may have been mistaken; *post hoc* is not always *propter hoc*, and in all probability they have sometimes—perhaps often—ascribed to the action of the globule or pilule what was in reality due to pure imagination on the part of the patient. But after all due allowance has been made for this and other sources of error, there still remains a sufficient mass of evidence to convince the majority of homœopathists that in some cases "infinitesimal" doses may exert a curative influence. And, while it ill becomes anyone to speak too dogmatically on so difficult a subject as this, it must be remembered that these homœopathists are the only persons who are entitled to express an opinion on the matter with the least pretence to authority. The *à priori* denial of their opponents who have made no trial of the question is, of course, simply the arrogant dogmatism of sheer ignorance, like that of the old philosophers who, on equally plausible *à priori* grounds, denied the existence of the Antipodes. It is surely a very insufficient excuse for the sectarian attitude assumed by the "orthodox" towards their homœopathic brethren to allege that the latter are disposed to admit the possibility of one inexplicable phenomenon in the realm of nature more than the former are willing to acknowledge. Does this really justify the exclusion of the latter from all professional intercourse and courtesy?

Suppose, for argument's sake, that it is an error to attribute curative power to "infinitesimal" doses in any cases. It follows, in the first place, that a much greater curative power must be ascribed to imagination and the *vis medicatrix naturæ* than is generally believed, since it is beyond all dispute that numerous cures of acute and chronic maladies in their severest forms have occurred during the administration of "infinitesimal" doses and nothing else. But in the case we are supposing homœopathic pilules, &c., must be regarded solely in the light of a *placebo*; and, if the *vis medicatrix naturæ* and the force of imagination are really so potent as (on this supposition) they must be assumed to be, *placebos* may advantageously be administered even in the most serious cases. The "orthodox" themselves employ *placebos*, though of a different nature. It will surely never be deemed an adequate apology for splitting the medical profession into two hostile camps to allege that the *placebo* of the homœopathists consists of sugar of milk, while that of the "orthodox" consists of bread pills or syrup of saffron.

Lastly, if it be inquired why the homœopathists continue so highly to extol Hahnemann, while they admit him to have fallen into so many errors, I reply that his errors were, for the most part, the errors of his age, shared often with Hunter and others of his distinguished contemporaries, while his great discovery remains his own. Everything in his moral and intellectual character loudly calls for our respect; his reverential spirit, benevolence, fortitude, industry, learning, and genius. The great historian of medicine, Kurt Sprengel, who will not be suspected of homœopathic proclivities, speaks in the most encomiastic terms of one, at least, of the works of Hahnemann, while Berzelius eulogises his genius for chemistry. No one can peruse any of his principal writings without being impressed with his profound and extensive acquaintance with medical and general literature. And, although no one law can, at least in the present state of our knowledge, furnish sufficient indications for our guidance in every case of medical practice, still, even here, that of *similia similibus curantur* is most valuable; while in the study of pharmacology it is all-important. By its aid alone can we ever hope to establish any comprehensible relation between pharmaco-dynamics, on the one hand, and pathology on the other, which, as Professor Gamgee most justly remarked, must furnish the sole scientific basis of medicine. And, even in the practice of medicine itself, I doubt not that, as our knowledge of pharmaco-dynamics and pathology increases, we shall find the Hahnemannic law susceptible of proportionally wider application; while many cases which now appear subversive of it, or, at any rate, to lie outside its bounds, will be discovered in reality to lend it their firmest support.

MATCHES.

THE extent to which the manufacture of matches is carried can be but faintly indicated by means of figures. The demand for them in Great Britain is, on an average, eight daily for each individual; in Belgium, nine per head; and, for Europe and North America, the entire average is six to every inhabitant. To meet this demand matches are produced by the million, and the wax taper, before division into small pieces, is measured by the mile. It is stated that one pound of phosphorus is sufficient for 1,000,000 matches, though the proportion varies greatly. In France there are consumed for this purpose 70,000 pounds of phosphorus every year. The largest makers are in Austria, two of whom use twenty tons of phosphorus per annum, and produce nearly 45,000,000,000 matches. One firm in New York uses annually 700,000 feet of choice white pine timber, 100,000 pounds of sulphur, and 150 tons of straw-board for their boxes.

EXHIBITION OF SANITARY APPLIANCES AT MANCHESTER.

IN connection with the 45th annual congress of the British Medical Association, a most interesting and important exhibition of sanitary appliances was held at Owens College, Manchester, during the past month. The space devoted to this object was the vacant ground at the back of the college, where a temporary wooden building had been erected; and during the first week (from the 6th to the 11th) the admissions in the daytime were restricted to the medical profession and members of the association, the public being admitted only after 5 o'clock at night. On the 13th the exhibition was thrown open to the general public upon the payment of a small fee, and continued open until the 18th. The exhibits—for a sanitary exhibition—were exceptionally numerous, and many of them were of particular interest, although the two crematory apparatus, which had been announced as having been lent from Milan, and which had been looked forward to with considerable curiosity, did not, unfortunately, put in an appearance, having miscarried, we understand, in transit. The attendance during the first week comprised between two and three thousand of the leading medical practitioners, not only of Great Britain, but also of America, Cape Colony, Australia and New Zealand,

and included Mrs. Garrett Anderson, M.D., and one or two other lady practitioners. The exhibition was divided into seven sections, and contained no fewer than 348 exhibits; and, although the distinctions to be gained were restricted to certificates of merit, the judges in some four or five instances, as will be seen below, gave a few awards in which "extra commendation" was bestowed.

In Section I., "Drainage and Disposal of Refuse," there were, as might have been expected, a variety of very valuable plans and models shown, but the chief interest was decidedly centred in two stands, at one of which Mr. Fryer, of the firm of Manlove, Alliott & Co., of Nottingham, was in attendance to explain his patent "Destructor," "Concretor," and "Carboniser," by which the sewage of a town may be converted and utilised for various purposes; and at the other of which Mr. J. H. Kidd, of Wrexham, showed a model of his machine whereby similar sewage to any amount may be burnt instead of accumulating, and can be afterwards "fortified" so as to become a marketable manure. Both processes are too intricate for minute description in a general report of this nature, but with regard to Mr. Fryer's system, we may explain that by the "Destructor" ashpit refuse is burnt and reduced to a kind of slag, which, it is stated, will grind into a very valuable cement (if mixed with certain proportions of lime). In the "Concretor" the fluid sewage is so treated that a considerable quantity of the water is innocuously evaporated, and a viscid mixture left, which is strong in concentrated ammonia, and which is valuable for manurial purposes. In the "Carboniser" the vegetable refuse of a town is reduced to a charcoal, which is useful either for mixing with the ammonia for manure, or for adding to carbolic acid or powder as a disinfectant. In all these processes the waste heat from the one process is utilised in the others. This system is adopted more or less, as it may be suited to their requirements, by several of our larger towns, including Manchester, Birmingham, Leeds, &c., and for his stand generally, which contained samples of sewage, &c., thus treated, and a drawing of a valuable patent disinfecting apparatus, Mr. Fryer was awarded a certificate of merit. The other stand which we have mentioned was devoted to a model of Mr. Kidd's machine, which is in full working order at Wrexham. This gentleman's argument is that sewage matter, however treated, will not *per se* produce a marketable manure of any practical value, and in this he is certainly borne out by the farmers in many districts, who will not take the trouble even to cart away the stuff when given to them, as the saying is, "for a mere song." His machine, therefore, is constructed to burn the sewage as fast as it can be supplied, and the product is then "fortified" with bone dust and other valuable additions, until, as Mr. Kidd contends, an article is produced which is as valuable as guano, and far cheaper than the present artificial manures which have such an extensive sale. Mr. Kidd was also granted a certificate of merit for this machine. Besides these stands, there were some very interesting plans and drawings of other schemes, and of methods for the ventilation of sewers and of drains, together with models and specimens of dry-earth closets and sanitary pans. Amongst these latter stands we noticed particularly an ingenious and effective plan for the much-needed ventilation of water-closets, by Mr. John Dodd, of Liverpool, in which a ventilation pipe is run from above the stench trap to the outside of the house (certificate of merit awarded). Mr. Dodd also showed some notable specimens of lavatory tables, fitted in the most finished style, the metal parts neatly lacquered with the nickel silver, which is coming so much into vogue. One of these tables, we may add, contained also the largest basin which we have yet seen exhibited by the trade. Amongst the earth closets we noticed Moule's well-known patent; an improved closet by Mr. William Martin, of Manchester; closet and model of Dr. Aldridge's patent water-closet ventilating apparatus, shown by the British Sanitary Company; Morrell's patent self-acting cinder-sifting ash closet, with samples of refuse as taken direct from the receptacle, without any manipulation whatever (certificate of merit awarded), shown by the Sanitary and Economic Manure Company (Limited), Salford; closets on Mr. D. T. Bostel's patent; Moser's (Southampton) patent dry closets, which effect the deodorisation of deposits by means of bellows; a self-ventilating and inodorous water-closet, invented by Mr. W. T. Symonds, C.E., shown by Messrs. Charles Winn & Co., of Birmingham; self-acting closet, with ingenious adjustments, by Messrs. E. J. Hughes & Son, of Manchester (certificate of merit awarded); water-closet and fittings, by Messrs. Winder & Harrop, of Manchester; and the "Perfect" closet, shown by the Carbon Fertiliser Company (certificate of merit awarded). New and improved stench traps and gullies were shown by Messrs. H. Harrison, of Fenny Stratford; D. Clark, of Carlisle; J. Borwell, of Burton-on-Trent (certificate of merit); Potts & Co., of Manchester (certificate of merit); John Newton, of Manchester; J. Stiff & Son, of Lambeth; Follows & Bate, of Manchester; H. Stott, of Greenland, Halifax; G. Schofield, of Elland, Yorkshire, said to be very effective; and by Mr. R. Goodwin, of Chesterfield (certificate of merit). Messrs. Hancock, of Dudley, exhibited a very ingenious cinder sifter; and Mr. W. Hill, of Congleton, a novel urinal, with a self-acting and simple economical appliance for disinfecting and deodorising.

In Section II., "Sanitary Architecture and Building," there were eleven entries, including drawings and plans of model dwelling-houses and hospitals by Mr. A. Hildebrandt, A.I.C.E., of Manchester; Mr. Ernest Turner, of 44 Bedford Row, London; Mr. H. Greenaway, of Plymouth; and Messrs. Corbett, Son & Brooke, of Manchester. In this section also some excellent specimens of their enamel painting were shown by the Silicate Paint Company (certificate of merit). Mr. G. A. Marsden, of Liverpool, exhibited a new patented mode of building with thin concrete and fire-clay slabs, which are impervious to moisture and are fireproof (certificate of merit); and the Boulinikon Floorcloth and Manufacturing Company showed an assortment of their buffalo hide floorcloth for preventing damp floors (certificate of merit).

In Section III., "Water Supply, Ventilation, Disinfecting, Heating, and Lighting," Dr. Rogers, of Retford, Nottingham, was awarded a special certificate of extra merit for a very handy portable disinfecting closet, very suitable for moving from street to street in times of epidemic, and also invaluable in outlying districts and small villages. The other exhibits were:—Carbolic acids, soaps, and powders—Messrs. Calvert & Co., Bradford. Gas-making machines, "The Alpha," in which the gas is obtained from gasoline—Mr. H. L. Müller, Birmingham. Patent earthenware boxes, bends, and pipes, for ventilation to sun and other lights; ventilation pipe covers and cones, and patent hydrocarbon sun-lights for increasing the illuminating power of gas—Messrs. J. Rigby & Son, Manchester. Model illustrative of ventilation; guard against smoke and dust for firemen, cutlers, and masons; protection of house-air against closet pollution, &c.—Dr. R. Elliott, Carlisle. Excellent collection of filters, including the useful little "Ashantee" pocket filter (certificate of merit)—Silicated Carbon Filter Company, Battersea. Patent portable fire-proof disinfecting and clothes drying closet, with ironer's stove combined, the waste heat arranged to dry and disinfect foul linen (special certificate of merit); patent self-acting disinfecting and foul linen combined steam washing and wringing machine; and patent mangle—Messrs. Thomas & Taylor, Manchester. Samples of polluted and clarified water; patent carbon candles (electric light); electric alarum clock—Mr. Hildebrandt, A.I.C.E., Manchester. Vertical ventilating tubes, with water boxes, &c. (certificate of merit); aërating filters, both cistern and portable; gas and stove apparatus—Messrs. Anderson & Wright, Manchester. A new form of closet compartment suited for trough and tumbler ranges—Mr. F. Vacher, M.O.H., Birkenhead. The new terebene soap and other terebene disinfecting preparations, and other disinfecting appliances—Messrs. F. S. Cleaver & Sons, London. Rain-proof Archimedean screw ventilator; improved construction of wind-guard for preventing down puffs in smoky chimneys; and model of cottage fire-place for economising fuel and cooking by Baron Liebig's slow process, fire fed at bottom to consume smoke (special certificate of extra merit)—Mr. Henry Fletcher, Manchester. Patent exhaust ventilator and railway carriage ventilator (certificate of merit)—Mr. T. Lloyd, Winchester. Carbolic acids, powder and soap—Messrs. McDougal, Mark Lane, London. Screw ventilators—Mr. J. Howorth, Tamworth. Variety of domestic and manufacturing filters (certificate of merit)—Messrs. J. Halliday & Co., Manchester. Self-acting ventilating valve—Mr. David Crossley, Brighouse, Yorkshire. Floating syphon and filter; disinfecting spray bottle and inhaler; closet disinfector; a new antiseptic preparation, &c. (certificate of merit)—Dr. Bond, Gloucester. Patent glazed earthenware cistern (special certificate of extra merit), as preventing the present accumulations incidental to an iron or a slate cistern—Mr. J. B. Blackmore, Manchester. Improved water filters—Messrs. James Stiff & Sons, Lambeth. Patent ventilating cornices and sunlights—Potts' Patent Ventilating Cornice Company (Limited), Manchester. Cistern with glass front and supply pipe, with water laid on, and waste pipe—Messrs. J. Tylor & Sons, London. No. 1 Patent Anti-Friction (agate-centred) Archimedean ventilator—Messrs. Follows & Bate, Manchester. Patent double-faced grate for warming a number of rooms; samples of syphon ventilators, having no valves or movable parts, invented and patented by Dr. Ancell Ball, of Spalding; and the "Excelsior" portable gas-making apparatus (Grundy's patent), an improved carburetter for obtaining a supply of pure gas in the simplest manner, free from all liability to fire and explosion—Mr. C. H. Sidebotham, Seedley. Carbolic acid powder, in perforated dredger canisters for domestic use, in casks and bags for stables and general disinfection, as supplied to sanitary authorities, horse and cattle owners, railway companies, and for shipment; store boxes for sanitary offices, stables, railway stations, hospitals, &c., for keeping a constant supply of powder at hand, without litter, and easy of access and distribution; and carbolic acid for all disinfecting purposes, in glass and tin bottles and casks—Mr W. Sharratt, Fairfield, Manchester. A new lamp—The Sun Auto-Pneumatic Lighting and Heating Company (Limited), London. Washers and wringers suitable for hospitals, &c., and requiring very little use of the hands in cleansing clothes, as well as for house purposes; square spruce, pitch pine, and oak oval tubs; and the "Lion" indiarubber wringing and mangling machine—Messrs. E. Firth & Co., Manchester. Air-pump ventilators—Mr. W. Carrick, Manchester. The "Save-all-Waste" warming and ventilating school or office grate, and the "Tudor" grate, which injects 5,000 cubic feet of fresh warmed air into the apartment or school per hour (certificate of merit)—The Coalbrookdale Company. Assortment of loose charcoal rapid water and patent charcoal block filters—Messrs. W. M. Jowett & Co., Manchester. Some bottles of a new and powerful deodorant liquid, the invention of Dr. J. H. Lloyd, of Llangefin, Anglesea—Messrs. E. J. Hughes & Son, Manchester. Assortment of Bischoff's patent spongy iron filters (certificate of merit)—The Spongy Iron Water Purifying Company, London. Improved patent self-cleansing (purest prepared charcoal) rapid water and terra cotta refrigerator water filter for dining room, and china night lamp and food warmer for nursery or invalid—Messrs. William Cook & Co., Manchester. Assortment of tubes for ventilating buildings upon Tobin's patent (certificate of merit)—Lancashire Ventilating Company. Patent saddle hot-water boiler, for warming buildings—Mr. J. G. Wagstaffe, Dukinfield. Assortment of Norton's "Abyssinian" tube welds and apparatus, with pumps and stands (certificate of merit)—Mr. G. F. Cox, Manchester. Improved set of steam laundry machines and disinfecting closets (certificate of merit)—Messrs. Bradford & Co., Manchester. Ventilator—Mr. J. D. Wright, Lupus Street, London. Air-pump ventilators upon Nature's principle, with no mechanical motion (special certificate of extra merit)—Messrs. R. Boyle & Son, Glasgow. Ventilators, filters, sash levers, and Beanland's patent quadrants (certificate of merit); gas cooking stoves and atmospheric gas fires—Messrs. Elliott, Alston & Co., Manchester. Grate, stove and vertical pipes for ventilation (certificate of merit)—Messrs. Shillito & Shorland, Manchester. Patent tin-lined lead tube, for the prevention of lead poisoning to water, spirits, dyes, &c.; patent pure block-tin tubes (free of any alloys), made in sizes ranging from ⅛ bore to 5 inches bore, any strength per foot, and in lengths and strengths equal to ordinary pipes (this has hitherto been considered impossible); glass pumps for semi-fluids; gas, heating, and lighting apparatus (certificate of merit)—Messrs. Winder & Harrop, Manchester.

In Section IV., "Smoke Consuming Apparatus and Methods for the Purification of Polluted Rivers," Messrs. Johnson & Hobbs, of Manchester, showed model of apparatus for condensing and purifying smoke and vapours (certificate of merit). The other exhibits were:—Automatic side-firing apparatus, self-regulating ashpit damper, for controlling the combustion of solid parts of fuel, and movable grate for increasing power of boiler and riddling out ashes; improved patent ventilating furnace door, and self-acting meter for regulating supply of air to furnace and preventing smoke (certificate of merit)—Mr. Broadbent, Cheetham. McDougall's patent mechanical stoker, for the consumption of smoke and the utilisation of heat (certificate of merit)—Chadderton Ironworks Company (Limited). Improved windguard, for increasing draught in chimneys and preventing down-puffs; model of an underfed stove, for consuming smoke (special certificate of extra merit); models of domestic fireplaces for Baron Liebig's slow-cooking process—Mr. Henry Fletcher, Manchester. Smoke-preventing apparatus—Messrs. Plambeck & Darkin, London. Smoke-preventing chimney cowls—Messrs. James Stiff & Sons, Manchester. Smoke curer—Mr. J. D. Wright, Lupus Street, London. Smoke-preventing bars, as used in the Houses of Parliament at Westminster, &c. (certificate of merit)—The Patent Diagonal Rocking Fire Bar Company, London. Collection of Royal Polytechnic barometers, incorporating Admiral Fitzroy's prize medal instrument; water testing apparatus; damp bed detector, and collection of scientific instruments—Messrs. Joseph Davis & Co., London. Chimney cowls for the prevention of blow-down, and smoke extractor for assisting the up-draughts in bad-going vents—Messrs. R. Boyle & Sons, Glasgow. Patent chimney cowls—Messrs. Elliott, Alston & Co., Manchester.

In Section V., "Food, Clothing, and Personal Conveniences," Messrs. Geyelin & Co. showed some samples of concentrated food. Messrs. F. & C. Hancock were also present with their well-known and useful machines for washing and cooling butter, &c., and for crumbling bread and grinding sugar, and for mixing and grinding powders for druggists. The other exhibits were:—Improved vessel for preserving liquids, such as beer, &c.—Mr. Martin, Manchester. Hospital bedstead ("Reed" pattern) with patent wire mattress attached—Messrs. Gresham & Craven, Salford. Samples of patent self-raising flour, and bread made therefrom—Messrs. McDougall Brothers, Mark Lane. Hospital beds and spring mattresses (certificate of merit)—Messrs. Chorlton & Dugdale, Manchester. Patent invalid bed, non-revolving, invented and patented by Dr. Ancell Ball, of Spalding—Mr. C. H. Sidebotham, Seedley. Canadian refrigerator for preserving food and beverages—Mr. Daniel Luke, Manchester Major Orrell's knapsack springs, to take the place of the old straps (certificate of merit)—Messrs. Firth & Co., Manchester. Improved tooth brushes and dentifrice—Mr. G. Salter, Red Lion Square, London. Samples of mineral waters, drugs, and block-tin pipes (certificate of merit)—Messrs. Jewsbury & Brown, Manchester. Patent copper bath, lined with block-tin, and bath fittings; copper, iron, and earthenware baths—Messrs. Winder & Harrop, Manchester. Earthenware bed pans, and toughened glass feeding bottles (certificate of merit)—Messrs. W. Cook & Co., Manchester. Preparations of cream-milk, cocoa and cream-milk, Grimwade's desiccated milk, and other products mixed with milk (special certificate of extra merit)—Hooker's Cream-Milk Company, London. Case containing samples of food, pure and unadulterated—Mr. C. Estcourt, F.C.S., Manchester. Samples of compressed tea and coffee (certificate of merit)—Messrs. Goundry & Co., London. Portable Turkish hot-air and vapour bath—Messrs. J. & F. Allen, London.

In Section VI., "Disposal of the Dead by Burial and Cremation," the London Necropolis Company showed one of their patent "Earth to Earth" coffins. Messrs. S. Hatchard & Co., London, had on view an elegant "Duplex" funeral car, to be used open and shut, and to be drawn either by men or horse (certificate of merit). The Crematory Society, of Milan, were also to have exhibited two models of crematory apparatus, by which "several successful cremations" have been performed, but the exhibits, as we mentioned above, were delayed upon the road, and did not arrive in time for the exhibition.

Section VII. was devoted to "Sanitary Literature," and contained some very valuable books, papers, and pamphlets upon hygiene and public health, including Mr. James Dutbie's "Treatise on the Utilisation of Towns' Sewage," with plan and section; Blyth's "Dictionary of Hygiene and Public Health," presented to the association by Messrs. C. Griffin & Co., Stationers' Hall Court; "Register of Visits and Index of Notes," for the use of medical officers of health and sanitary inspectors, and copies of pamphlets on precautions against the spread of disease, &c., and directions for preserving health by Dr. Alfred Ashby, M.O.H., Grantham and Newark districts; various contributions to sanitary literature, by Dr. F. Bond, M.O.H., Gloucester; Zuccato's Patent Papyrographic Printing Process (instrument presented to the association); some recent publications of the Manchester and Salford Sanitary Association; sundry publications in various languages relating to cremation; "Hints on Drains, &c., Sewer Gas and Sewage Disposal," by Dr. Hinckes Bird, F.R.C.S., and several useful tracts and books of the Ladies' Sanitary Association, which latter were awarded a certificate of merit.

We should not omit to mention that a valuable new cement testing apparatus, specially ordered by the Japanese Government, was in the exhibition, and was shown by Messrs. W. H. Bailey & Co., Salford.

NAMES OF BRITISH MEDICINAL PLANTS.

By W. G. Piper.

Madder and Meconium.

In a vocabulary of the names of plants written about the year 1264, and giving in parallel columns Dog Latin, Norman-French, and the English of that time, we find these words placed as synonyms—

Vermiculum .. Warance .. Wrotte.

Warance is the equivalent of the modern French Garance, and means madder.

One of the Anglo-Saxon equivalents of Vermes was Mad. This word is connected with a Gothic verb, Matyan or Matgan, which means "to eat." Matgan is from the root "ma," to cut or sever, whose progeny form an important section of the vocabulary of Europe.

The third person singular of the present indicative of Matgan is "matgith—he eateth." From this we got Moth, Maggot, and Mouth. Moth * is formed by the elision of the guttural sound, which would produce "matith." This would soon be corrupted to Math and Moth. Maggot we owe to the loss of the final aspirate. This would leave Matgit. Let the reader pronounce this once or twice, and he will soon find it become Maggit. This is still the pronunciation among some parts of the community. Mouth is formed in the same way as Moth, and doubtless at first it was very difficult to distinguish them. Some slight error or difference in pronunciation probably crept in, the usefulness of which was so apparent that it was retained and broadened until we have the present words Moth and Mouth. Our language owes much of its beauty and wealth to the skilful use of such mistakes. Moth in Anglo-Saxon and Gothic was Matha. In Dutch it is Mœle and Macye, and these changes which it undergoes help to illustrate the derivation of Mad, "a worm," from the root Matgan.

Thus in the Teutonic languages a worm is a creature that gnaws and bites and corrodes. In the Romance languages it is a creature that writhes and twines and creeps. Both words are strong and picturesque.

It must be regarded as a strange coincidence that while we have from Vermes, Vermiculum, the most celebrated scarlet dye of the ancients, we have from Mad, Madder,† which has had almost as great a fame in modern times. Minsheu, however, would derive Madder from a supposed Dutch word Medan, "to tinge or dye." Skinner, guided by the Italian word Madera, thinks that Madder may mean *Matera tinctoria.* Neither of these suggestions has much to support it.

From the same Gothic verb Matgan we also get Meat, Maw, and Maim. From the verb Mawan, "to mow" (very nearly connected with Matgan), we obtain the useful little words Much, More, and Most. Horne Tooke, in the "Diversions of Purley," was the first to propose this derivation. One of the forms of the verb in frequent use was Math. The *th* ending of verbs is now always dropped in conversation and ordinary writing, and it appears that it was the same in a lesser degree in Anglo-Saxon. Math would thus become Ma. While still retaining a verbal force, it also came to mean something mown; hence a mow or heap of hay, straw: then a heap of anything. Just as we can speak of "a heap of money" as "much money," so it seems that Ma took a qualifying force and became an adjective of quantity. Its after history illustrates man's inveterate tendency to exaggeration. As soon as it became an adjective it assumed the regular inflexions, and became Ma, Maer, Maest. It was pronounced and spelt rather irregularly, and Horne Tooke gives in the work quoted the following list of forms which were actually in use, and are now to be found in Anglo-Saxon manuscripts:—

Ma	Ma-er	Ma-est
Mæ	Mæ-er	Mæ-est
Mowe	Mow-er	Mow-est
Ma	Mo-er (*i.e.*, more)	Mo-est (*i.e.*, most)

The two forms More and Most which are now in use are the only ones which are not strictly Anglo-Saxon. Much is a diminutive of Ma, and has come to us through the forms Mokel, Mykel, Mochil, Moche, and Much. At one time Ma or Mo meant simply a heap or quantity of anything without specifying the quantity. In the course of time it came to mean a large quantity, so that when it was wished to speak of a bulk not necessarily large, a diminutive of the old word had to be used. And we cannot doubt that "much" is growing still. We cannot now use it, except with a negative, unless there is a considerable quantity to be spoken of.*

The word Warance deserves a little notice.† Bockmann and Ducange (and following them Littré, Pereira, and others) suggest that the Low Latin name Varantia is a mistake for Verantia. As Aurantium means golden-coloured (Aurum-antium), so probably Verantium would mean true-coloured (Verum-antium). In Spanish Colorado means not only coloured but red. The Greek Dibaphikon means not only double-dyed, but scarlet. Verumantium, the true colour, would by analogy be red or scarlet, and the properties of the substance named certainly bear out the suggested origin of the name.

Returning to the poppy. In Roumanian,‡ as well as in Classic Greek, the common name for the poppy is "mekon" (††). All authorities are agreed in deriving this from "mekos" (**), bulk. Some explain the derivation as alluding to the conspicuous size of the capsules. Others think that it refers to the height and size of the plants (illustrated by the story of Tarquin cutting of the heads of the tallest of the poppies). The former explanation is probably the correct one, and it is noteworthy that this is not the only name of the poppy derived from the same circumstance. The Hebrew is Ro(V)SH and Ro(A)SH, which both refer to the head. Poppy head and poppy capsule are still in use. Codia conveys the same idea.

It is curious to note that the Teutonic and Romance names, although keeping themselves so distinct elsewhere, yet find a meeting-place in England. It is also remarkable that the Greek name is entirely lost in the Latin (which owes more to it than, perhaps, to any other language), but is still preserved among the very different German dialects.

We are told by Ducange, in the ninth volume of his "Glossary of Mediæval Latin," that in Picardy (corresponding to the present Pas de Calais and parts of two adjacent departments) the poppy was formerly termed Mahon. He gives under the word Mahona three meanings:—1. A kind of helmet; 2. Copper (derived from the first meaning); 3. "Sed et etiam erraticum papaver vulgo coquelicot Picardi nostri Mahon vocant"—"But also the papaver erraticum, commonly called coquelicot, and in Picardy Mahon," He then quotes from a work written A.D. 1401:—"D'une pugnie de gerbe que on dit Machon que la dite femme cueilli," &c., which we should translate "a pinch of the herb called Machon, gathered by the said woman." There also is, or was, a word Mabonner, which means to root up poppies ("papaver evellere"). There is little doubt that Machon, or Mahon, is the same word as Mohn and Mekon, and it is probable that we must reverse the order of meanings, making poppy first, deriving Mahona, copper, from the analogy of relation of the colour of copper to other metals to the relation of the colour of the poppy to other plants; and deriving the third meaning (Mahona, a helmet) from its being made of copper, or from its likeness to poppy heads (Ger. Mohnhaupt, &c.).

The English Mawseed is a much disguised representative of Mekon. Mawseed is the seed of the *Papaver somniferum,* either in its natural state or dyed blue and other colours (?). It is called in German Mohnsamen, in provincial German Mohnkorn and Magsamen. We have had so many examples of the change of *g* to *w*, that I need only point out the relation of Magsamen and Mawseed. From Mekon we get Meconium. This name is sometimes improperly applied to opium. It belongs strictly to an extract made by expressing or boiling the entire herb with the heads, and evaporating the liquor to a suitable consistence. From Meconium come meconic acid and meconates.

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* The name moth was originally applied, not to the mature flying insect, but to the caterpillar. Anyone who has kept silkworms will appreciate the fitness of this name, "the eater." So maggot and mouth will both mean "eaters."

† Dutch Mee, Meekrappe; Russian, Marlona; Pol., Marzana; Ital. Madera.

* The root "ma" is a very interesting one. From it come mother, membrane, member, mile, mode, modest, moderate, mete, measure, mill, million, matter, mite, millet, gromwell, and a host of others. The derivation of many of them can be easily traced by the help of Dr. Smith's larger Latin Dictionary.

† The modern French for Madder is Garance. Older forms are Gnarance and Garence. Littré, in his "Dictionnaire de la langue Français," gives the following forms. In the thirteenth century, Warance and Gnarance; in the fourteenth century, Warenche and Gnlance, with Low Latin equivalents, Warancia and Garantia; in the sixteenth century, Garance appeared. A Low Latin name of uncertain date is Varantia. One authority gives Granza as one of its Spanish names.

‡ Modern Greek (**), connected with Magnus, Might (Ger. Macht); (††). Russian, Mak; Polish, Mac and Maczek; Bohemian and Hungarian, Mak; Old High German, Mago; Middle High German, Mage; Modern German—in Upper Germany, Mage or Magen; provincial, Mahn; pure, Mohn; Flemish, Maan (pron. Morn): Dutch, Maankop and Mannekop; Norwegian, Mue; Danish, Valmue (wild or field poppy).

Codia and Codā were two of the Latin names of the poppy; both come from the Greek Kōdeia. This word meant "the head—particularly the heads of plants, and especially poppy heads." From it we got Codeine and Diacodium (Dia, from, and Kodeia, a poppy head—something prepared from poppy heads, as Diachylon, Dia, and Chylos, juice, something prepared from the juices of plants). Diacodium* is an obsolete name for syrup of poppies.

It is possible that the Irish and Gaelic names of the poppy are connected with Codeia. The Irish names are Codlainean and Codalan; the Gaelic, Codalan and Lus-a-chodail (Lus, a plant, a-chodail, lit. of sleep). These words are connected in both dialects with numerous words expressing the idea of sleep, and their present meaning is nothing more than sleepwort. It is quite possible, however, that the plant gave the name to the quality and not the quality to the plant.

It is sometimes startling to notice how the names of one plant are connected with those of another. Monkshood is the common name of the *Aconitum Napellus*. The "hood" is connected with Codeia, the name of the poppy of which we have just been speaking. The meaning can be traced through a long series † of words from its present meaning of hood to that of Cap, a guard, up to Codeia, a poppy head, and then a head. ‡

THE MEDICAL DEFENCE ASSOCIATION.

WE have received the first report of the above association. It was presented to the meeting of the members held on June 29, but appears to have been only lately issued. We reproduce the paragraphs which are likely to interest our readers:—

"The council have much pleasure in reporting that the provincial branches of the association have already done some excellent work, having successfully prosecuted in several cases of unqualified practice. Other cases are now pending. Among the branches which have instituted prosecutions are the Accrington, the Nottingham, the Sunderland, and the West Cornwall branches. In all the provincial cases reported to the council the offenders belong to the class known as 'prescribing chemists.' They were all prosecuted under the Apothecaries' Act, and in each case a penalty of 20*l*. was recovered. Startled by the signal success which has attended the proceedings which the association has taken against members of their body, the chemists and druggists have formed a Defence Association, for the purpose of defending those of their number who may be prosecuted for practising medicine. In the prosecution which was instituted by the Nottingham branch against a chemist for 'counter prescribing,' and in which the usual penalty of 20*l*. was recovered, the Chemists' Trade Association is supporting the defendant in appealing against the conviction, and the case will shortly be decided in the Court of Exchequer. Your council had hoped that the chemists as a body would have repudiated the action of those among them who engage in medical practice, but they regret to observe that the chemists and druggists in their trade journals now claim—for the first time—the right to prescribe for patients in medical cases, and have declared their intention to contest the point to the utmost. Your council have every confidence that they will be successful in resisting the pretensions of the chemists, and that neither the administrators of the law nor the common sense of the country will allow the health and lives of the people to be tampered with by those who have received no medical education.

"The council regret to state that several cases have come to their knowledge where qualified medical men are protecting unqualified practitioners and chemists who prescribe and visit. Complaints have been made to certain of the medical corporations of such conduct on the part of their licentiates, but no notice has hitherto been taken of these complaints. The council is of opinion that the licensing bodies should do all in their power to keep their licentiates within the strict lines of professional practice, and to punish to the utmost those who flagrantly, and in defiance of the bye-laws of the corporations of which they are members, encourage quackery. The difficulties of the council in dealing with unqualified men have been greatly increased through those who are qualified allowing those who are not to practise under their names and protection."

We are not quite certain whence come the funds for the prosecution of "prescribing chemists," but if this association has to find them it must rely somewhat confidently on the justice of its cause. The report states that the income for the past year did not amount to 90*l*. The council is well entitled to pride itself on the noise it has made in the world with such moderate means.

COUNTER-PRESCRIBING IN AMERICA.

ENGLISH druggists are not the only sinners in respect to counter-prescribing. The Medical Society of the Alleghany County, Maryland, has passed a resolution, declaring "that it is the duty of the members of this society to withdraw their prescriptions from any druggist who puts up any nostrums, or who prescribes or recommends any patent or other medicines for any class of cases, whether grave or trivial." To this the druggists have replied by a resolution in which they will, "in the alleviation of suffering amidst all classes, pursue, as heretofore, the legitimate mode of conducting our own affairs."

The *American Journal of Pharmacy* would like to avoid any quarrelling, but remarks that—"In trivial cases, like toothache, slight cough, and the like, patients will use domestic remedies before they apply to the dentist or the physician. Such counter-prescribing it has been found impossible to suppress, even in those European countries where the whole power of the State could be brought to crush an evil, if evil it be; and it is our firm opinion that resolutions or threats, from whatever source they may emanate, will fare no better. Let the legitimate wants of the public be studied and recognised, and let both professions act harmoniously together, and the removal of a great amount of complaint will be the result."

The Maryland public, however, as represented by the *Baltimore Gazette*, is not quite so gentle. In an article headed "Pill and Liberty," the editor concludes that "the druggists have the side of free pills and liberty. Should the doctors subdue them, they may advance next upon the vendors of stimuli, and no man would be able to assuage the pangs of thirst unless he were armed with a legitimate prescription:—℞ Foliæ menthæ, sacch. alb., 1 oz.; spiriti vini otardi, 3 ozs.; glacis pulv., quant. suf., et shakete violenter et suckite dulciter cum strawum. Shall this be? Never! The druggists have in their keeping the cause of liberty. The eyes of all Europe are upon them."

LABORATORY CONVENIENCES.

A CORRESPONDENT of the *Scientific American* offers the following hints:—

Little laboratory experiences, the knowledge of which saves much annoyance and contributes greatly to the pleasure of working, are naturally overlooked by the inexperienced. The repetition here of some of them may be of benefit.

A piece of wire gauze soldered over the escape in a sink will prevent the pipes becoming clogged.

To clean greasy utensils, some pieces of newspaper, a soaped sponge, and a little powdered pumice does the work in a twinkling; whereas many will thoughtlessly and laboriously try the effect of soap and water alone. Profanity is known to have been occasioned by a hard water complication.

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* Ger. Diakodium, Diakodion, Diakodiom, syrup; Fr. Diacodion, Diacode; Sp. Diacodion, Diacodio.

† Dutch, Hoed, Hoete, Ger. Hut=Pileus or Capitium, from Dutch Hoede. Ger. Hut=Custodia, from the Dutch verb Houeden, Hoeden, Hoden, Ger. huten, to protect, to guard, connected with Old Fr. Huaten, Huodan, Behoodan, Hodan, to guard, derived by Junius from the Gr. Keutho, which is connected with Kodeia and Kodia, a poppy-head or ball—hence a head.—Skinner's "Etymologicum."

‡ The following are some of the works consulted in the preparation of these notes:—Beckmann's "History of Inventions," Mudge's "Words of the English Language Classified" (not yet published), Prior's "Popular Names of British Plants," Horne Tooke's "Diversions of Purley," Ducange's "Glossarium Mediævi et Infimæ Latinitatis, Littré's "Dictionnaire de la langue Français," and many more.

Bits of paper, with or without muriatic acid, are nearly always preferable to shot for cleaning bottles, of course when there is no thick sediment.

A wet cloth, on which the glass receptacle of a hot liquid is set, will, in some way I am unable to explain, obviate breakage.

A rubber band to keep the cloth used in straining from the sides of a funnel is a convenience.

Foreign Pharmacy.

A School of Pharmacy at Melbourne.

At the annual meeting of the Pharmaceutical Society of Victoria, held on March 16, a motion was carried urging upon the council the desirability of establishing a School of Pharmacy. Mr. Henry Shillinglaw has been appointed secretary to the Board of Pharmacy.

Hindoo Quack Medicines.

The *Indian Mirror* (Calcutta) contains the advertisements of several native medicines of marvellous virtues, but with almost prohibitory titles. Kooujora Kauty Toyla, Oushanna Sunjskurna Choorna, or Duddrooghunna Batika would upset tongues that had trained themselves to talk about Aleximorrhygiastikon and diamethylprotocatechuic acid. One of these Hindoo advertisers gives a few translations of native testimonials. They concern the Amrita-rasa, or death preventing drink. One grateful, but mathematically particular, patient declares himself to be "$\frac{3}{4}$ths cured of his fever." Another "was laid up with various complicated diseases, so much so that there was no means of saving life. Perfectly cured by the Amrita-rasa." A third testimonial is worth publishing in full. The writer, Parmeshwar Mukerji, says:—"My venerable father was suffering under fever, cough, and gonorrhœa for a long time. He used bottles of your valuable Amrita-rasa (though he was unable to use it regularly), and his fever and cough are perfectly cured, and about 12 annas of gonorrhœa are reduced. This last disease is of 15 years' standing." We should hope the amorous old gentleman has by this time entirely recovered from the effects of his rather severe chastisement.

Something New in Labels.

An old newspaper man from Ohio has started a drug store in the city of Detroit, and a local paper, commenting on his innovations, remarks that he will either be a millionaire during the next three years, or "bust" in less than six months. His store is very cheerful. Skulls, crutches, forceps, chromos, bones, false teeth, almanacs, parrots and sticks of liquorice are scattered around in delightful profusion, and there isn't a drawer or bottle without an original label. On one drawer he has: "Glue—She sticks right by you, no matter what the weather." On another: "Copperas—eat slowly and chew fine." On another: "Paris green—Sure in its operation—lasting in its effects." The label on one of the bottles reads: "Buy some of me and stop that blamed cough." On another: "I'm sal. petre—who are you?" On another: "Prussic acid—Don't fool around with a revolver."

Hanging against a wall is a beautiful sign, which reads: "If you don't want to ask for a fine comb, just point your finger at me!"

At the back end of the store is a still larger sign, and it bears the tender sentiment: "There is no flock without its missing lamb. Sometimes you find him in the bedstead. I keep the stuff to make him weary of life. Don't ask for bed-bug poison, but call it 'The Lost Lamb Restorative.' I shall know what you mean."

The front of the store bears several happy thoughts. Among them is one reading: "Walk right in here if you had buckwheat for breakfast last winter." Another says: "I can cure that red nose in just fourteen days." A third reads: "You man with the catarrh—please step this way."

American Popular Names.

We have sometimes printed some curious names by which drugs and chemicals are called for in this country. But an American druggist has made a better collection. Ultramarine is, he says, called for as German blue, powdered blue stone, French blue, marine blue, Indian blue, true blue, varine blue, flour blue, Prussian blue, room and wall blue, whitewash blue, blue-wash dry, Mary's blue, China blue, "blue thing," Selferino blue, "something to put in lime." Some of the names for lycopodium are, vegetable sulphur, earth moss seed, yellow baby's powder, dusting power, witch powder, worm flour, German shaving powder, "yellow thing you put on babies' sores," and lightning powder. Italian liquorice is sold as "one of them strips," "five of them gums," paste liquorice, Jew liquorice, and indiarubber liquorice. A slip of paper calls for "Magisa" (magnesia), or "horse magnesia" and "houseman's magnesia" (husband's magnesia), shoemaker ginger (ess. ginger), Sutton's syrup (soothing syrup), paddy (putty), clear cut (creasote), acclic acid (oxalic acid). A German sends a paper and an eight ounce bottle: "Put five cents' worth of smell gut in this bottle" (essential oil for pomade), Berick's plaster (porous plaster), groom yellow (chrome yellow). Written: "Send me six righteous pills" (Wright's pills). "Have you got any accommodation oil?" After stating that we could accommodate him, we fill his can with combination fluid. Written: "Hycropœchie (hiera picra), kernel sed (cardamon seed)." "Have you got anything that will take hair out and never grow again, for high forehead?" (depilatory powder). Chlorified and chloroformed lime for chlorinated lime; karbtollicit (carbolic acid), fiddlers' powder (Seidlitz powder), "powder when you put in water it cooks" (Seidlitz powder), "that there black stuff" (liquorice), "cavenesed magnesie" (calcined magnesia), petre salt (saltpetre). Written on paper:—"Ten cents' worth of hunney, with a few drops of alexir vitriel for to cut the phlegm off the cheest and throte" (honey and elixir vitriol), Burr's plaster (porous plaster), calamy powder (calomel), cured lime (chlorinated lime), alum root (arrowroot), China pills (Jayne's pills), a bird's fish (cuttle fish), sweet cider (sweet spt. nitre), poultice plaster (porous plaster), shellappa powder (powd. jalap). A grown person asks for "double settlement" (corrosive sublimate), chrome red (vermilion). A young man asked for powdered borax, to put on a lady's breath (breast), white wax to starch clothes with, cinnamon leaves (senna and manna), valentine liniment (volatile liniment). Written:—"Five cents' swerip sena" (syrup of senna). A slip of paper calls for "Coultfoot and featherfuse" (coltsfoot and feverfew), one for "corkstick" (caustic). A *gemmen* of colour wants red ash to make green (bichromate of potash), artic pills (cathartic pills), squassia root (quassia wood), flannel seed (fennel seed), Indian powder (insect powder). A very nice little girl wishes flesh-coloured cold cream, red whitewash (Venetian red). "Have you got middle-sized sand-paper for matches;" labankin and compound mixed (compound spirit lavender), parliament plaster (strengthening plaster), borghs (borax), gum suraction (gum arabic), spearmint city (spermaceti), gummy drachant (tragacanth), broom rag (probang), Johnnie for windows (chamois). Written: "Cenoe on manor" (senna and manna), sulphur and brimstone mixed (sublimed sulphur), lump powder (carbonate magnesia), stone camphor (camphor), home-made beeswax (yellow wax). A lady speaking with a rich brogue calls for "five cints' worth o' camphiro," while another customer wants Goulard's extract, and cautions you to put plenty of Goulard in it. The old story of a young man calling for Jane's experience (Jayne's expectorant), in my opinion, is very plausible after all the slang terms I have heard, and only goes to prove that conducting the drug business is not all plain sailing, even after you have mastered the technical terms found in the pharmaceutical works, but that it is highly necessary to impress upon your mind the slang terms which stare you in the face every hour of the day.

A Well-Earned Decoration.

At the Institute of Orleans (France), on August 16 last, an interesting and perhaps unique ceremony was gone through. A certain M. Barré entered the service of Messrs. Renault & Rolland, pharmaciens and wholesale druggists, on August 16, 1827. He was employed in the counting-house, and for the period of 50 years, says the French journal from which we quote, he has never missed a single day coming to his office. This astounding devotion to his work was rewarded by a gold medal, specially struck and presented to him by the prefect of the department and the mayor of the city. We would strongly advise M. Barré to go in for a little fun after such a feat.

THE CHEMIST AND DRUGGIST

☞ *For particulars of Advertisements, Subscriptions, &c., please refer to the first page of Literary matter. An Index to the Advertisements contained in this issue will be found in the front portion of the Journal.*

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Ground so as to retain the natural colour of the seed without being heated.
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SEE PAGE 55.

HOMŒOPATHIC MEDICINES.

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Chemists by Appointment to the London Homœopathic Hospital,
Manufacturing Homœopathic Chemists,
Are desirous of appointing Agents for the Sale of their Preparations in various parts of the United Kingdom and the Colonies.
For Particulars apply at 59 Moorgate Street, E.C.

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See Page 65.

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44 HATTON GARDEN, LONDON.
RECOMMENDED BY THE MEDICAL PROFESSION.
For particulars, see page 11.

EDITORIAL NOTES.

TO THE STUDENT OF PHARMACY.

SCIENCE is one—its infinite branches radiate from a common centre, truth, towards which they in turn converge. It is well now and then to remember these broad generalities, and to recognise how the several developments of knowledge bear on each other and are linked in unity. Yet experience teaches us a lesson of humility. It is given to few men to grasp the circle of the sciences, or to be masters of universal knowledge; experience teaches us also the doctrine of common sense, that science, which is one, is best advanced by diligent cultivation of its separate departments. For this reason learned societies have arisen each with their special work. The Geological devotes its care to the study of the formation of the globe, and thus truth springs out of the earth. The Astronomical considers the heavens, and righteousness looks down from heaven. All have their distinct vocations, and there is wisdom in this concentration of idea. We ourselves have accepted pharmacy as a definite field of inquiry: it has no glittering attractions or high philosophical speculations, whilst at the same time it is intimately connected with that science of chemistry whose fascinations are as strong as its practical bearings are important. Let us for a moment plead for that branch of knowledge which immediately concerns ourselves; by the exercise of which we get a living, and by success in which we gain our reputation. Hundreds of pharmaceutical students (the figure used is one of arithmetic and not of speech) have a strong tendency to neglect the prosaic details which affect their business life. They are great in symbols and equations, and can write a paper on a carbon atom—accomplishments on which we throw no shadow of depreciation; but we must not be censured if we point out that if these things be studied to the exclusion of pharmacy pure and simple, or so as to place an intimate acquaintance with pharmaceutical laws and operations in a secondary position, the student has mistaken his career. We would deprecate in these remarks the smallest suspicion of censure, or the notion that an attack was made on some delinquency. The most natural thing in the world is to be charmed by the pursuit of chemistry and its all-absorbing interests; and it is quite natural to feel very much less drawn towards the sober instructions of the British Pharmacopœia. Nevertheless, we stand to our assertion that he who is not meant hereafter to fill an academic chair, or to adopt the profession of an analyst, to earn a livelihood as a consulting chemist, or to embark upon tutorial work, but whose design it is to take upon himself the honourable position of a pharmacist, will be disappointed, unless pharmacy itself has received his deliberate attention. We may reverse the picture and say that he will not be disappointed if he is master of his pharmacy. Our enthusiastic young friends will be inclined to doubt this statement, and we thoroughly agree with them had their lot been cast in pharmacy fifty years ago. The pharmacist of the present day may take (none hindering) any position to which his skill, his personal intelligence, or his education may be the passport. He is under the ban of no social degradation, and he may consort on equal terms with whatsoever society he may be thrown in contact. Neither is he debarred from intellectual pursuits, the which he will cultivate the more successfully as indomitable perseverance and downright devotion to his business begin to make him independent. Should he, when successful in his trade, think that the main object in his existence is the sale of an ounce of salts, that is his fault, and the blame must not be thrown on pharmacy. We venture even upon the opinion that the career of the pure pharmacist may contrast not unfavourably with that of his professional comrade, whom sometimes in his heart of hearts he has been disposed to envy.

THE TEACHING OF THE PHARMACEUTICAL CONFERENCE.

That pharmaceutists should make pharmacy their chief object of study seems reasonable enough, but we are baffled dreadfully by the undisguised tendency on the part of the British Pharmaceutical Conference to teach otherwise. The central word of the title of this society has been rather ignored at Plymouth. We except at once and altogether the address of that typical and essential pharmacist, Professor Redwood. The late president believes in pharmacy, which it has taken him more than thirty years to learn. He gave a historical retrospect of the transitional condition of the druggist, including the various charters of incorporation and legislative enactments which have led to our present standing. We except also "Sugar in Pharmacy," by Charles Symes, Mr. Schacht's model Laboratory, and the excellent communication on "Preserved Foods and Copper," by Dr. Paul and Mr. Kingzett. Mr. W. Willmott gave an interesting and valuable paper on the "Effects of Variations of Temperature on Boiled Putrescible Liquids;" and Mr. W. W. Urwick clearly carried out the intentions of the Conference in his description of a "New Medicinal Solution of Phosphorus." It would be wrong also not to acknowledge that the discussions on those and other papers of pharmaceutical value had contributed to the general store of knowledge. We shall not, then, be accused of a one-sided or unguarded statement when we remark that certain papers seem to have been misdirected for the post—they should have found their way to Burlington House, and not to the Athenæum, Plymouth. No objection can be raised to a strictly chemical paper here and there; but when the continued analyses of the aconitines is followed by that of capsaicin, to which a report succeeds on the characteristics of essential oils, with special reference to the hydrocarbons therein contained; when the terpenes of the oil of sage were laboriously investigated, and hederic acid received a double notice; when the alkaloid supposed to be present in narcissus pseudo-narcissus preceded a note on diphenylamine, and blood albumen was described as well as pilocarpine, we are justified in the observation that the meaning of the term pharmaceutical with reference to the British Conference was disregarded. We plead solely for the future larger introduction of such topics as may prove serviceable to that community of druggists whose history was so carefully traced out in the presidential message.

THE FIRST DISPENSARY.

We may turn from this brief notice of an old chemist to that older race of men called the apothecaries, who, in 1671, founded a chemical laboratory, which was the pioneer of all succeeding similar establishments. Unless we are mistaken, the first distinct chemical laboratory adapted to the purposes of pharmacy by a pharmacist was founded nine years later. We have no intention of diluting in any way the lucid account of the apothecaries and their doings which has been so recently contributed but it is quite permissible to add a word respecting the first creation of a dispensary, and the curious piece of literature in which the event has been commemorated. In July, 1687, the College of Physicians published an edict requiring all the fellows, candidates, and licentiates to give gratuitous advice to the neighbouring poor. Great opposition arose on the part of the apothecaries, and there was hot question, not as to "who is my neighbour," but who should be included in the poor. Next year, however, it was voted that the laboratory of the College should be accommodated to the preparation of medicines, while another room should be prepared for their reception, and contributors towards the expenses should be directors of the charity. It was expected that the apothecaries would undertake the task of providing these medicines, but (relates Dr. Johnson) they considered the whole design pernicious to their interest, After various altercations, bitter and acrimonious, the physicians persevered and procured the assistance of some apothecaries to undertake what was then called the *dispensation*. An offer was made to the warden and company of the apothecaries to adjust the scale of prices. Not only was the offer rejected, but those apothecaries who had tendered their assistance were considered traitors, and were prevented from fulfilling their engagements. The physicians held out still, and, in 1696, a subscription was raised amongst themselves, an agreement was drawn up, and the dispensary was started. It was not productive of much permanent benevolence, still less of good feeling between the contending parties. Out of these disputes rose a third body—the dispensing chemists and druggists. In the original list of donors to this medical charity occur the names of many celebrated physicians—amongst them that of Sir Samuel Garth, who disputed the honours with Dr. Radcliffe. He wrote a poem (wrongly sometimes called a satire) in six cantos, called "The Dispensary." It is a highly polished effusion, in the lighter vein of Pope, and it enjoyed great celebrity in its day. Those who are fond of historical pharmacy will do well to consult its smooth versification, though they will accept the criticism of Dr. Johnson:—"Garth's poetry has been praised at least equally to its merit. No passages fall below mediocrity, and few rise much above it." The following is the description of the building of the dispensary at the hall of the College of Physicians:—

> First, some to cleave the stubborn flint engage,
> 'Till, urged by blows, it sparkles into rage:
> Some temper lute, some spacious vessels move;
> These furnaces erect, and those approve;
> Here phials in nice discipline are set,
> There gallipots are ranged in alphabet.
> In this place magazines of pills you spy;
> In that, like forage, herbs in bundles lie.
> While lifted pestles, brandished in the air.
> Descend in peals, and civil wars declare.
> Loud strokes with pounding spice the fabric rend,
> And aromatic clouds in spires ascend.

A VENERABLE CHEMIST.

John Huskisson, an old chemist, the father of the trade, has been removed by death, aged 87. There are probably few of the elder druggists in London who were not familiar with the white-haired and venerable manufacturer. No one was better acquainted with the commercial bearings of pharmacy. Himself a walking price-list and an unfailing referee, he was fond of diversifying the routine of business with a peculiar vein of pleasantry, which will be well remembered by all with whom he had to deal. Moreover, the firm which he so long represented enjoyed a reputation for the wholesale manufacture of various chemicals, and it is but fair to state that complete confidence was gained when once the customer was informed that any article in question had been produced under his direction. Middle-aged assistants (now probably masters on their own account) will recollect that some years ago, when there were fewer railroads, they used to speculate, not in shares, but drugs. On such trying occasions there was no safer guide than John Huskisson. Nothing would induce him to leave his daily rounds and accept official duties in the Pharmaceutical Society, of which he was an original founder. About fifteen years back he retired from business, and entrusted the chemical works at Swinton Street to other hands.

DISPENSING—THE ORIGIN OF THE WORD.

What is the meaning of the word *dispense?* We must not make the Latin language favour our preconceived theories, nor let the wish be father to the thought. Dispenso in its full English meaning implies, "I continue to weigh out," or "I go on weighing out in divided portions." Reliance may be placed on the following grammatical explanation. There are three simple verbs. 1. Pendeo, second conjugation; neuter—pendēre, "to hang down." 2. Pendo, third conjugation; *a.* and *n.*—pendĕre, "to cause to hang down." The first application of the word was to the statera, the steelyard or balance—hence, to weigh. As money was estimated by weight, the verb had a second meaning of "to pay." 3. Penso (other form pensito), a frequentative verb, which expresses repeated or intenser action. Familiar instances of this form are seen in cano, "I sing;" canto, frequentative, the act continued; curro, "I run;" curso, frequentative, the act continued—thus, curso per urbem, "I run up and down the city." Canto and curso are the frequentative verbs derived from cano and curro. Penso is the frequentative verb derived from pendo. Dis relates to *two*, hence division, severance, separation. Dis before verbs means "apart," "in divided portions." Hence we get—Dispenso, avi, atum, are, first conjugation, frequentative—"to repeat the action of weighing out in divided portions," a meaning accurately embodied in our English word "to dispense." Many correspondents have lately quoted these words as if they were mere varieties; they bear definite translation. Others have assigned to them a far wider interpretation than the original derivation warrants.

THE TRANSPORT OF MEAT.

Long waited for, the *Frigorifique* has returned to the shores of France. The expedition has betrayed no unreasonable hurry, as the vessel left Rouen on September 20 last. All is, however, well that ends well, and we are told that the ether freezing process, invented and patented by M. Tellier, has answered expectation. The *Frigorifique* went to the River Plate, and from thence has fetched back 200 oxen and 30 sheep. The animals were slaughtered in April last at Buenos Ayres and Monte Video: a period of 112 days elapsed between the loading and unloading of the cargo, yet since the arrival of the vessel the meat has been examined by the officials appointed by the Minister of Marine and the Council of Administration of Rouen. The whole was pronounced to be in fine condition, and the plan of refrigeration said to be inexpensive, as the space required for the apparatus was very small and capable of being adapted to any ship. We wait for more practical developments of this industry. Hitherto we have not found a diminution in household expenditure arising from any system. When this happens, we shall not wait for an archbishop to bless the *Frigorifique*; we shall do it on our own account, and many thousand other will follow the example.

THE BRITISH ASSOCIATION AT PLYMOUTH.

The events connected with the British Association are now matters of history, and such publicity has been given both to its social and scientific proceedings that any further detailed record would be unnecessary. Still it is due to the character and intention of these notes that mention should be made of this annual reunion of distinguished men. We may express a regret which will be shared by every frequenter of these meetings, that Mr. George Griffith, who for 16 years has acted as the assistant secretary, is about to relinquish the duties of his office. The remarkable manner in which year after year he has discharged those duties has excited the admiration of all concerned. We are told that the splendour of the scenery of the West interfered not unfrequently with a diligent attendance on the sectional work, and that some important papers were read to comparatively scanty audiences. Notably was this the case with regard to Dr. Odling's lecture "On the Newly Discovered Metal, Gallium." This truly rare elementary body, in the production of twelve grains of which half a ton of zinc was expended by the discoverer, formed a beautiful illustration of chemical law. It was shown by the lecturer that as the heavenly bodies are linked together and take their places according to one grand system of order, and that modern discovery is gradually filling up the gaps in that system which theory, based on scientific reasoning, has pointed out, so also that the 64 chemical bodies now known and considered elements may be ranged according to their properties in a regular and definite series. It follows, therefore, that we can anticipate the existence of other elementary substances to fill existing gaps in this chain before the art of chemistry has been able to seek out their resting-place and demonstrate their actual form and properties. How infinitely this raises chemistry as a science, and renders it a noble study, it is needless to describe. Gallium, the latest contribution to our knowledge, the latest, that is, which has been fairly and experimentally determined, fills up one of these known gaps, and supplies one of the links in the series which were previously ascertained to be deficient. What further happened at Plymouth must be sought for elsewhere than in these columns. Darwin is beginning to wear the greenest laurels and to receive emphatic confirmation of his views. The elaborate address of the president, Dr. Allen Thomson, was a long commentary in favour of the doctrine of evolution. "That, indeed, was the only inference which could be drawn by a careful and impartial student of embryology." "I consider it impossible, therefore (said the Doctor), for anyone to be a faithful student of embryology in the present state of science without at the same time becoming an evolutionist." Darwin has had a still greater honour. One of his recent books was brought out by his two sons. Philosophy could have no higher reward.

PROFESSOR ABEL'S ADDRESS TO THE CHEMICAL SECTION OF THE BRITISH ASSOCIATION.

The presidents of the various sections of the British Association in past years considered it their duty to give in their presidential address a complete summary of the progress made during the year in their department. Science and its devotees have increased so rapidly that it is now beyond the power of a single mind to grasp its yearly advancement, even in a solitary branch like chemistry, so that latterly it has become more and more the practice of the presidents to confine their attention to a single subject, and instead of discursively traversing wide areas, to thoroughly explore and describe the one subject they have chosen. Professor Abel, in his address to the Chemical Section, chose this year a subject the consideration of which must, in his official capacity of Chemist to the War Department, have been often forced upon him. That subject was the successive improvements which have been made in the manufacture of steel and iron by the application thereto of purely scientific knowledge and research. He said that the first of these scientific applications was well within his recollection. Before the Exhibition of 1851 the quality of our iron was steadily deteriorating, while the output was as steadily increasing. Little or nothing was known of the conditions of manufacture which influenced the quality of the metal, and the only point systematically studied was economy in make. But the Exhibition, besides stimulating competition among the ironmasters in point of quality, contained a large and very valuable series of British iron ores, collected with great labour and expense by Mr. S. H. Blackwell. Not considering his work finished when the Exhibition closed, Mr. Blackwell presented the whole of this valuable series to the Royal School of Mines, and munificently accompanied the gift with a large grant of money to provide for the thorough chemical examination of the series. Possibly if Mr. Blackwell had not done this work some other might have taken his place. Nevertheless, to him belongs the honour of introducing to our staple industries the only means by which we can hope to maintain our former superiority. Nothing can now be permanently successful which is not based on sound scientific principles. After speaking of the succeeding attempts to control the chemical operations of the blast furnace, Professor Abel spoke of the marvellous ease and precision with which, by improved furnace construction, large masses of metal can now be handled, and the readiness with which steel or iron of any requisite quality can be produced. He pointed out what remained still to be done, and closed his very interesting, though rather technical, address by remarking on the small appreciation yielded to chemical research by those who most benefit by it.

THE PROGRESS OF THE EUCALYPTUS.

Garibaldi acted wisely when he advocated the introduction of the Eucalyptus to combat the malaria of the Campagna: every fresh piece of evidence relating to this tree confirms those expectations which have been formed respecting its beneficial influence. Very valuable information is contained in the report from Algiers forwarded by Consul-General Playfair. He points out the ruinous consequences which have ensued from the destruction of forest trees. The earth, deprived of its natural protection, was no longer able to attract and condense the moisture in the atmosphere and cause it to descend in dew and rain, and the dampness of the soil was liable to induce evaporation from its surface. Hence a serious change of climate has ensued. No doubt can be entertained that the plantation of eucalypti—the remedy proposed—has the strongest arguments in its favour. In Algeria the eucalyptus attains in about seven years the same dimensions as the oak in twenty. The timber at the same time is hard and dense, and a large profit might be expected from the cultivation of these trees on a soil so appropriate. The consul gives a remarkable instance of the action of the eucalyptus in removing miasmatic influence, and thus improving the sanitary condition of an unhealthy district. Great havoc was made amongst the early Algerian colonists, especially amongst the workmen at the great iron mines of Mokta-el-Hadid. It was impossible for them to remain there during the summer. Those who attempted to do so died, and the company was obliged to take the workmen there and back every morning and evening. This reminds one of that dismal Indian railway station where the men were stationed but one month at a time. The same beneficent change was effected at both places by the same means. In the neighbourhood of the mine, from 1868-70, the company planted more than 100,000 eucalypti, and now the men can work with impunity at all seasons of the year. Other places are mentioned where fever has disappeared, miasma has been destroyed, and marshes have been drained. Whatever objection may be raised, based on the inert character of the dried leaf and stem, yet there seems no reason to doubt that as the tree contains so large a quantity of essential oil the emanation from the leaves must effect a natural hygiene according to a theory which has recently been so well explained. Allowing for whatever of romance may be contained in these and similar reports, it would be foolish to ignore such palpable and sanitarian results.

TRUE RHUBARB.

The examination by Mr. E. M. Holmes of the root of *Rheum officinale*, grown at Banbury, does not confirm the view that it may be accepted as the true source of the Russian rhubarb of commerce. A plant three years old was dug up: the rootstocks, being trimmed, weighed, on an average, about 8¼ lbs., the central one 10 lbs. "When the outer portion was carefully sliced off (writes Mr. Holmes) in different parts of the rootstock and root, it *nowhere* presented the appearance characteristic of the true Russian rhubarb." On slicing the meditullium in like manner, there was no trace of the network which forms a marked characteristic of Russian rhubarb, and the following points of difference were observed:—"The transverse section of the rootstock also is not so finely grained, and although it is marked with many stellate spots, the markings are much larger and bolder than those of Russian rhubarb, and, in fact, approach more nearly to the markings on English rhubarb. The sections of the true roots present only a radiate structure, without any stellate markings. In my opinion the Russian root is produced by a plant which has a much less rapid growth than the noble *Rheum officinale*, Baill."—September 8, 1877. From the above it would appear that the question has not been so definitely settled as some writers have supposed. The root forwarded to the late Daniel Hanbury, claiming to be a specimen of the true source of Russian rhubarb, was not that of *Rheum officinale*. Unfortunately, it arrived too late to be subjected to his admirable powers of investigation.

THE DRUG BUSINESS IN JAPAN.

The fees for druggists' licenses for the fiscal year 1876-77 in Japan amounted in value to 30,000*l.* This tax was imposed in January last. It does not affect the drugs and medicines used and prescribed by the medical profession, and its object is to restrict the sale of medical compounds, partaking of the character of quack medicines, in which, as well as in the charms against every description of disease and misfortune sold at every temple, the Japanese seem to have great confidence. To obtain permission to make and sell these medicines, a minute description in writing of the nature and effect of each must be sent to the Ministry of the Interior, and heavy penalties are attached to their unauthorised sale and manufacture. A license for the manufacture of one such medicine costs 8*s.* per annum. A druggist's license for their sale costs 1*s.* per medicine. Those of itinerant and other vendors, 1*s.* for all sorts of these medicines. The latter licenses are valid for five years.

THE PHARMACEUTICAL COUNCIL.

The September meeting of the Pharmaceutical Council took place on the 5th instant, seven members only being present. They were:—Mr. William Dawson Savage, vice-president, in the chair, and Messrs. Betty, Churchill, Greenish, Hampson, Hanbury, and Owen. The only matter of importance that came forward was in connection with the report presented by the Law and Parliamentary Committee. From this it appeared that a prosecution had been commenced against Mr. Thomas P. Allatt, of Haconby, Bourne, an unregistered person, for selling laudanum with a patent medicine stamp, and labelled as follows:—"Smith's Black Sedative Drops, commonly known as Laudanum (Poison). Wholesale Agents, Sturton & Sons, Peterborough. Sold in 7½*d.* and 1*s.* 1½*d.* bottles." The defendant did not contest the case, but paid the penalty. The committee also recommended that the names of Frank Oates and George Frederic Webb, who had obtained registration as apprentices by fraudulent personation, should be erased from the register. The committee had also had before them the case of a member of the society in Bermondsey threatened with legal proceedings by the Medical Defence Association. It appeared that the writ served on the chemist did not specify the particulars of the offence, and the committee thought it would not be desirable to take action until further information was obtainable. After some discussion, the recommendations of the committee were all adopted.

It will be observed from the above that the illegality of selling poisons as patent medicines is admitted in a certain case, but it should still be remembered that such admission is not equivalent to a judicial decision. We have often pointed out the evasion, and no one has ever doubted that the spirit of the law has been violated. But it is not so clear that its letter has been infringed.

REVIEWS

AND

Literary Notes.

The United States Dispensatory.

We have received from the publishers, Messrs. Lippincott & Co., of Philadelphia, a copy of the 14th edition of this important work. As it is one of the recognised standard works in our language on pharmacological science, we may take this opportunity of writing briefly a description of the book and its contents.

The United States Dispensatory appeared first in 1833, under the authorship of Dr. George B. Wood, the President, and Dr. Franklin Bache, the Vice-President of the Philadelphia College of Physicians. It soon became the standard text-book of American pharmaceutists. From the first it was a splendid work, combining in itself all the officinal information of the Pharmacopœia, with much other matter for which it would have been necessary without it to ransack a whole library. The American Pharmacopœia, though universally recognised, is not an official work in the same sense as the British and German Pharmacopœias or the French Codex. It is the production of a National Convention, representing the various medical and pharmaceutical associations of the United States, and fulfilling the work perhaps as well as if they had the authority of Church and State behind them. Wood and Bache's Dispensatory has consequently taken a position in America something above even that occupied by Mr. Peter Squire's most valuable "Companion" in this country. It is, besides, a much more bulky volume. It contains in this its latest edition nearly 1,900 pages, and is a full treatise of materia medica and pharmacy. Nearly twenty years ago one of the authors, Dr. Franklin Bache died, but the venerable original and chief editor has directed this edition, though his assistants, Dr. H. C. Wood, Professor of Materia Medica and Pharmacy in the University of Pennsylvania, and Dr. R. Bridges, Professor of Chemistry in the Philadelphia College of Pharmacy, have largely aided in the revision.

The work is divided into three parts, with an appendix, containing various tables, &c., which could not be conveniently placed elsewhere.

Part I. treats of the materia medica of the United States Dispensatory and that of the British Pharmacopœia, the latter being kept in a subservient position.

Part II. treats of preparations, and Part III. of drugs and medicines, "not official," that is, not included in either the U.S.P. or the B.P. This part is intended to commemorate drugs which have passed out of use, to include all that seem to be making way with the profession, and, lastly, to suggest suitable subjects for research by showing in how many cases our knowledge is deficient. The book is closed and completed by a comprehensive index.

The present edition is based on the latest U.S. Pharmacopœia, and also takes cognisance of the British Pharmacopœia additions of 1874. Among the extra-officinal drugs included in this edition may be mentioned boldo, bromal, brominated camphor, a number of bromides, Curaba di Guiden, gall-like excrescences on certain species of pistachia, recommended for asthma, damiana, eucalyptus, goa powder, jaborandi, koumiss, extract of malt, salicylic acid, and methylic ether. This section of the work is perhaps the most generally useful of the book, as it contains information on matters often wanted, and which it is often hard to know where to refer for. As a whole, the Dispensatory is a noble monument of the industry and skill of American representatives of pharmacy, and is worthy of a place at least in the public pharmaceutical libraries of this country.

A New London Flora, or Handbook to the Botanical Localities of the Metropolitan Districts, compiled from the latest authorities and from personal observation. By Eyre Ch. de Crespigny, M.D., M.R.C.S., &c. London: Hardwicke & Bogue.

The substance of this book consists of a list of plants found within a radius of thirty miles from London, with the situations they affect, the time of flowering, and the localities in which they have been found by the author and others. The second part consists of a list of localities, such as "3. Banks of the Thames from Putney to Kew," with a short description, and a list of the plants to be found there at various seasons. Our experience of these works is that they are disappointing to the botanisor as long as he trusts to them to aid him in his search for plants. When this idea is abandoned he may experience a certain amount of pleasure in detecting plants in localities not recorded in the book.

Manual of Vegetable Materia Medica. By George S. V. Wills, Principal of the Westminster College of Chemistry and Pharmacy. With 100 coloured illustrations. Published at the College.

It is something creditable to be able to produce a work on materia medica amid the multitude which tempt and confuse the aspiring student, with such a distinct point of novelty about it as to justify its existence. But Mr. Wills may fairly claim to have given us a work of real utility, and one which will honestly fill a vacant spot in the pharmaceutical book case.

By the employment of coloured lithographic plates, it is obvious that descriptions of drugs are to a great extent superseded, and what is given is rendered more clear. The 100 illustrations in Mr. Wills' book are well chosen, and the success of the process is perhaps more marked in the reproduction of these dead specimens than is generally the case with the coloured illustrations to be met with in some botanical works.

No one who has a practical natural acquaintance with plants can look on the most perfect illustrations of them without a more or less defined feeling of dissatisfaction. Drugs do not labour under this disadvantage. A practical and natural acquaintance with them almost always includes a perfect familiarity with their appearance on a background of white demy; and we are astonished that up to the present time no attempt at coloured delineations of them has been made in England. It may be said that drugs differ less in colour than in texture and surface, and however difficult it may be to obtain the exact shade of colour, the accurate representation of these minor details is much more so. The examination of the figures in the work before us will prove that this argument is fallacious, and we must confess that we cannot understand the reason why more pretentious and elaborate works have been so long without this great addition to their value and beauty.

In the book before us the representation of the surface and texture of the drugs and the colouring could in most instances hardly be improved. We nowhere see the gaudy tints so usual in the commoner representations of natural objects. We do not mean to say that all the illustrations are perfect. We never remember to have seen cinchona barks of the tint represented on plates 11 and 12. We should not have recognised fig. 70 as a leaf of *Prunus laurocerasus*, nor fig. 39 as *Cuspariæ cortex*; but these are the exceptions.

The text which is embellished by these plates consists of a careful abstract of the history of the vegetable materia medica. It is accompanied by a copy of Wills' "Habitat Map," lately noticed in these columns, and at the end are some useful tables. A noteworthy feature is an appendix of 500 questions on the materia medica. There is no doubt that this book supplies, and well supplies, a demand that exists among students for a carefully condensed and accurate summary of the materia medica. But we cannot refrain from remarking how extremely short-sighted is the indolence which repels students from such authors as Pereira and Hanbury. Students (as a rule, we fear) wish for a book that contains *all* that is necessary for passing the Minor, and nothing more. They should remember that if a locomotive carried only just enough coal and water to enable it to complete its journey, a contrary wind or slippery rails would make it break down before it reached its destination. So in study and examinations: let the student never be afraid of knowing too much. One of the earliest of English authors, writing soon after the Conquest, said—"The more that a man knows the more worth he is." And this is true in all time, and all the world over. We hope the day may come when students will study for the sake of knowing; when the public shall know enough about our business to understand its complexity and responsibility, and when such books as the one before us will be found in his own writing in the hands of every apprentice. Till that day we can recommend this book as one which, used conscientiously, will give a really honest knowledge of the subject it pretends to teach.

We have occasionally received, by the courtesy of one of the professors at the Montpellier School of Pharmacy, copies of the "theses" presented by the graduates of the school on taking their diplomas. One before us just now is a very interesting "Study on the Turpentines, and especially on Bordeaux Turpentine." We shall probably take an early opportunity of transferring some of the information given in this essay to our own pages. We remark now, however, on the curious custom which we observe in all these "theses" of dedicating the work to a somewhat extensive circle of friends. For instance, in the one now before us, the first page following the title is inscribed "A la mémoire de ma Grand'mère." The next page groups the following:—"A mon père, à ma mère. A mon frère, mon meilleur ami. A ma belle-sœur. A mes parents." This seems to exhaust the family. The next page gives the following:—"A M. le docteur L. Soubeiran, Professeur á l'école supérieure de Pharmacie. Daignez, cher maître, agreer la dédicace de ce modeste travail comme un faible témoignage de ma reconnaissance et de mon devouement." Then the author remembers the happy days of his apprenticeship, and he finishes up his dedications thus:—"A Monsieur Félix Coudanne, Interne Lauréat des Hôpitaux de Paris, Pharmacien à Dax, mon premier maitre en Pharmacie. Faible témoignage de ma reconnaissance et de mon affection." "A mes maitres."

We have received from the Homœopathic Publishing Company two small medical works, both by Dr. William Morgan, the one on diabetes mellitus, the other on contagious diseases. The latter refers exclusively to venereal complaints. Of course, both treatises are from a homœopathic point of view, and as such they are valuable, giving the results of experience in practice with medicines chosen on that principle.

NEW BOOKS.

Published since August 15.

Contagious Diseases: their History, Anatomy, Pathology, and Treatment. With Comments on the Contagious Diseases Act. By W. Morgan. Post 8vo., pp. 212. Homœopathic Publishing Company	3/6
Defects of Sight and Hearing: their Natural Causes, Prevention, and General Management. By T. W. Jones. 3rd edition, fcp., pp. 112, sewed. Churchill	1/
Flora of Mauritius and Seychelles; their Flowering Plants and Ferns. By J. G. Baker. Published under Authority. 8vo. L. Reeve ..	24/
Hints on Ophthalmic Out-Patient Practice. By C. Higgins. 12mo., pp. 88. Churchill	2/6
How to Use the Ophthalmoscope: Elementary Instruction in Ophthalmoscopy for Students. Illustrated. By E. A. Browne. Post 8vo. (Philadelphia.) London	5/
Inorganic Chemistry, adapted for Students in the Elementary Classes of the Science and Art Department. By W. B. Kenishead. Enlarged edition, 12mo., pp. 240	1/6
Morphology of the Skull. By W. K. Parker and G. T. Bettany. Post 8vo., pp. 380. Macmillan	10/6
Manual of the Anatomy of Invertebrated Animals. By T. H. Huxley. Fcp., pp. 708. Churchill	16/
Medical Catalogue of the Radford Library, St. Mary's Hospital, Manchester. By C. J. Cullingworth. 8vo., pp. 258. Manchester: Cornish	3/6
New London Flora; or, Handbook to the Botanical Localities of the Metropolitan Districts. Compiled from the latest authorities and from personal observation. By E. C. de Crespigny. 12mo., pp. 190. Hardwicke & Bogue	5/
Public Health Act, 1875, and the Rivers Pollution Prevention Act, 1876. The text of the Queen's Printer's edition, preceded by a complete index. By F. Stratton. 8vo., pp. 160. Knight & Co.	3/
Spas of Aix-les-Bains and Marlioz, Savoy: their Physiological Action, Modes of Application, Clinical Effects, and Analysis, together with Practical Instructions. By O. F. Bertier. Crown 8vo., pp. 176. Churchill	4/
Students' Handbook to the University of Cambridge. For the use of persons intending to enter at the University. By A. P. Humphry. 12mo., pp. 72. Bell	1/6
Treatise on Chemistry. Vol. 1. The Non-Metallic Elements. With illustrations, and a portrait of Dalton, engraved by C. H. Jeens. By H. E. Roscoe and C. Schorlemmer. 8vo., pp. 768. Macmillan	21/
Treatise on Perfumery: containing a History of Perfumes, &c. By R. S. Christiani. 8vo. (Philadelphia.) London	25/
Volumetric Analysis, a System of. Translated, with notes and additions, from the second German edition, by M. M. Pattison Muir and E. Fleischer. Crown 8vo., pp. 294. Macmillan ..	7/6
Die Naturgesetzlichen Grundlagen d. Pflanzenbaues. By Th. v. Gohren. 8vo.	10/6
Lehrbuch der Analysis. By R. Lipschitz. 1 Bd. 8vo.	17/6
Physiologische Methodik. By R. Gscheidlen. 3 Lfg. 8vo.	7/

A GLANCE AT THE MATERIA MEDICA OF DEVON.

By Edward Smith, F.C.S.

[*Read at the Meeting of the British Pharmaceutical Conference at Plymouth, August* 15, 1877.]

Mr. President and Gentlemen,—I trust the title of my paper will not be misunderstood. It is not, of course, my intention, even if it were possible within the limits of a short paper, to enter minutely into all the details connected with the various products of the county. Neither do I pretend to anything but a very incomplete knowledge of the subject. In this respect I must claim your indulgence, trusting that as there must be many members present who have probably both a wider range of experience and more intimate knowledge of the county than I can lay claim to, some of you will fill up the gaps necessarily left open, by giving us the results of your own observation and experience. I thought that even a cursory glance at a subject of this nature might not prove altogether uninteresting to the many members attending the Conference from distant counties.

The pharmaceutical productions derived from the Fauna of Devon are of the usual character. Taking the Pharmacopœia chiefly as a guide, we find mentioned in that work eggs, suet, milk, lard, cod liver oil, ox gall, honey, &c. In eggs, suet, and lard we have nothing special to offer. Our oxen are well known as *facile princeps* amongst their species, although our Fel. Bovis is much as other ox gall. Our milk does not differ from the general character of that secretion. It appears to have that singular affinity for water that seems almost to amount to a function. Our clotted cream, perhaps, deserves a special word. Devonians say you cannot get cream out of Devon. But then the Cornish and Somersetshire folk say the same of their respective counties. It is, I believe, on record that a couple of weary travellers, having unwittingly crossed the border, out of Devon into Cornwall, and asking, among other good things, for a bowl of Devonshire cream, were supplied by the buxom hostess, much to the surprise of her visitors, with a mug of very attenuated milk. A vehement remonstrance brought out the truth. "Oh! you waants *Carnish* creame. I wandered at your askin' for that puer De'nshire stuff." I am bound to say, however, that this Devonshire "stuff" is, as doubtless most of you will have ample opportunity of judging before long, rather a toothsome tit-bit, and especially so when strawberries are ripe. Although the cod fish abounds on the Devonshire coast, I do not know of any important maker of cod liver oil. With regard to honey, the amount produced in Devonshire is not nearly so great as might have been anticipated. Many of the smaller farmers and cottagers possess hives, but only to a very limited extent. Considering the great and special advantages offered by the moorlands, it is, I think, much to be regretted that a production, capable of being readily developed into a profitable business, is not more cared for and cultivated. Some few years ago I made an attempt to collect the honey in the Chagford district, but I found the amount procurable was too small to enable me to enter into any satisfactory business arrangements.

Passing now to the Flora of Devon, we find here more material to work upon.

Of the Ranunculaceæ, *Aconitum napellus* is found in patches in various parts of the country, though not nearly to such an extent as formerly. Some few years ago it flourished luxuriantly in Darlington Park, near Totnes, but it has now disappeared from thence, owing, I imagine, to the poisonous nature of the plant having been discovered. It is still to be found on the banks of the Dart, especially near Stoke Gabriel and near Staverton.

Of the Papaveraceæ, *Papaver rhœas* is common in the cornfields and roadsides. *P. somniferum* is not found, so far as I know.

The Cruciferous plants are represented by *Cochlearia armoracia*, common in the gardens, and sometimes in waste places amongst garden refuse. The three mustards are fairly common. *Sinapis alba* grows luxuriantly on the limestone soils. *S. arvensis* is common in cornfields, and *S. nigra* in the fields and roadsides.

Viola odorata, of the Violaceæ, is found plentifully; a white-flowered variety is fairly common.

Of the Linaceæ, *Linum usitatissimum* is found pretty abundantly. It grows luxuriantly during the summer about a mile from Torquay, on the Paignton road; also on the "New Cut," Torquay. It is found, also, near Totnes and Exmouth. *L. catharticum* has been gathered near Torquay, and is also met with near Brixham and Paignton.

Rhamnaceæ: *Rhamnus frangula* is found forming a part of the shrubs of the hedgerows near Paignton and Torquay. It is not uncommon in the Moreton and Tavistock districts. *R. catharticus* is not, so far as I am aware, found in Devon.

Sarothamnus scoparius, of the Leguminosæ, abounds nearly everywhere throughout the county.

Of the Rosaceæ, *Rosa canina* is pretty ubiquitous in the county. *Potentilla tormentilla* is found frequently in heathy places about Dartmoor. *Prunus laura-cerasus* grows luxuriantly in the gardens. In some parts of the county the fruit is collected by the poor people and eaten as a delicacy, notwithstanding that Bentley says "the fruit is poisonous." It is also made into a most delicious jam or conserve.

The most important Umbelliferous plants are *Fœniculum vulgare*, found plentifully on the railway banks between Paignton and Torquay, and on the roadside between Teignmouth and Newton, and *Conium maculatum* in the lanes around Torquay, and many other places in the county. It may be gathered to an almost unlimited extent.

Caprifoliaceæ: *Sambucus nigra* is the only medicinal plant of this order, and is common throughout the county.

Valeriana officinale, of the Valerianaceæ, grows on the swampy ground near Watcombe, also in the neighbourhood of Newton, Tavistock, Plymouth, and other places.

The Compositæ are represented by *Anthemis nobilis*, a somewhat plentiful plant, being common near Torquay, Paignton, Milber Down, Bovey, and Tavistock. *Leontodon taraxacum* is common everywhere. The roots of plants growing on limestone soils are not unfrequently dwarfed and forked into several smaller rootlets, very unlike the strong robust roots I have often collected in the Midland Counties and elsewhere.

Of the Solanaceæ, *Solanum dulcamara* grows in the hedgerows almost universally. *Atropa belladonna* is a very rare plant. It has been found, I believe, near Coombe Martin, North Devon. I have not met with it in Eastern Devon. *Hyoscyamus niger*, on the contrary, grows most luxuriantly in many parts of the county. Near Torquay, at Paignton, Dartmouth, Slapton Sands, and other places, an almost unlimited quantity could have been gathered during the season just passed. The Pharmacopœia directs the leaves of this plant to be gathered "when about two-thirds of the flowers are expanded." Speaking now of the wild plant, I do not agree with this. My experience points to an earlier gathering. If the collection be left until the plant has partly flowered, by far the largest and best leaves have, to a great extent, withered and become yellow, and unfit for use. An earlier collection saves all these, the resulting dried herb being, in my opinion, better in colour and in efficiency than if gathered later. Dr. Christison remarks, with respect to the activity of the leaves, "I have found them sufficiently active even in the spring *before* the appearance of the flowering stem." *Datura stramonium* is but rarely met with. Last year it was common in a field between Paignton and Totnes, but has not this summer appeared in the same place. Several years ago a luxuriant patch grew near Stoke Gabriel, on the Dart. This has since disappeared.

Scrophulariaceæ: *Digitalis purpurea*, locally known as Flap Dock, grows abundantly in every part of the county. In the woods near Moreton-Hampstead it may be seen in most luxuriant masses, and when in bloom forms a charming addition to the landscape. The leaves of this plant should, I think, be collected before the plant begins to flower.

The three Mints—*Mentha piperita*, *M. viridis*, and *M. pulegium*, represent the Labiates. *M. piperita* is found at Cockington, near Torquay, also at Ashburton, Chudleigh, and other places. *M. viridis* is somewhat rare; found in marshy places around Exmouth. *M. pulegium* is found in swampy places, as Forde Bog, near Newton. This herb is called in the Devonshire dialect "orgaus" or "argans." The origin of the word I do not know. In a poem in the Devonshire dialect, published in 1867, these lines occur:—

> Jist put her tooties in hot watter,
> An' gier a few strang argans arter,
> Or else some feath-rfowl.

That is, "Put her toes in hot water and give her a little strong pennyroyal tea after, or else some feverfew."

Daphne laureola alone represents the Thymelaceæ. It is found in the woods between Paignton and Totnes, and several other localities.

Cannabinaceæ: *Humulus lupulus* is occasionally found, apparently wild, in the Cockington lanes, near Torquay; it flourishes also at Goodrington, Paignton, Brixham, &c.

Ulmaceæ: *Ulmus campestris* and *U. montana* are common throughout Devon.

Salicaceæ: The various willows flourish abundantly throughout the county.

Cupuliferæ: *Quercus robur* is very abundant in our woods.

Moraceæ: *Morus nigra* is found cultivated in sheltered gardens in Torquay and neighbourhood.

Coniferæ: *Juniperus sabina* also flourishes in many gardens and shrubberies as a cultivated plant.

Colchicaceæ: *Colchicum autumnale* is a rare plant, at least in Eastern Devon. At one time it flourished near Torquay, but has now disappeared.

Filices: *Lastrea filix mas* flourishes luxuriantly throughout the country, and is a very common plant.

With regard to the inorganic Materia Medica, I propose to restrict this paper to a notice of the minerals of Devonshire, which are both numerous and important. For our purpose (and including in this those of more strictly chemical interest) they may be divided into two classes:—

- α. The rarer minerals, consisting of ores containing antimony, bismuth, cobalt, gold, tungsten, uranium, and mercury (?).
- β. The commonly occurring minerals, consisting of ores containing arsenic, sulphur, copper, iron, lead, silver, manganese, tin, zinc, barium, and the mineral kaolin.

α. Of the rarer minerals, *Antimony* occurs in several parts of Devon, but only to a very limited extent. Antimonite is found near Bovey Tracey. It was worked for a short time, but the venture was not financially successful.

Bismuth ores are occasionally met with, not in sufficient quantity, however, to become marketable.

Cobalt occurs sparingly in several localities. The largest yield on record from one mine occurred in 1820, when, according to Worth, "1,700 lbs. of ore of inferior quality were raised and sold from Wheal Huckworthy, Sampford Spiney."

Native Gold occurs too, but in small quantities. It has been found in the beds of the Dartmoor streams, and also by Mr. Flexman in the hematite of North Molton. The working of this hematite for gold turned out a financial failure.

Tungsten, in the form of Wolfram or tungstate of iron and manganese, is occasionally met with in tin mines accompanying the tin oxide, and owing to its high sp. gr. greatly impedes the operations connected with ordinary tin dressing.

Uranium, as Pitchblende, has been found near Tavistock, in very small quantities only, not sufficient to become a marketable production.

I do not think mercury can rightly be considered as a Devonshire metal. A few years ago some excitement was caused by the announcement in the local papers that mercury had been discovered in the rocks near Exeter. I was sufficiently fortunate to obtain a sample, which was undoubtedly metallic mercury. It seems, however, to have been thrown there, and I am afraid the whole thing was a hoax.

β. Of the commonly occurring minerals, *Arsenic* is found abundantly in many parts of the county as arsenical pyrites or arsenical mundic, or mispickel—arsenio-sulphide of iron. Until a comparatively recent period arsenical pyrites was considered valueless, or nearly so, but the great demand for arsenic of late years has vastly stimulated its production. At the present moment something like 3,000 tons of arsenious acid per annum are produced in Devonshire, the Devon Consols Mine alone producing from 150 to 200 tons a month, enough to destroy the lives of 500 or 600 millions of men. Almost any day there may be seen at this one mine, packed ready for sale, sufficient arsenious acid to destroy every living creature on the face of the earth—a somewhat startling reflection. Of course comparatively little of this arsenious acid is used in medicine. As far as I can make out, large quantities are shipped to the Continent—Germany chiefly—where, I believe, it is employed in the aniline colour manufactories. The arsenious acid is obtained from the mispickel by roasting the pulverised ore in a reverberatory furnace, with free access of air. The vapours are conducted into long, nearly horizontal zigzag chimneys, in which the arsenious acid is deposited as a grey or black powder. It is removed from time to time, and refined by resublimation. The sulphur which is evolved as sulphurous anhydride at the same time is generally allowed to escape into the atmosphere.

Sulphur occurs very abundantly in combination with iron as iron pyrites or mundic (FeS_2). Mundic is not accounted of much value by the miner, and although it contains about 53 per cent. of sulphur, it is not, so far as I am aware, utilised to any great extent. The little used is employed for the manufacture of sulphuric acid and ferrous sulphate.

Copper.—This metal is found chiefly as sulphide and as oxide. It occurs very abundantly in some parts of the county. It is worked in the neighbourhood of Tavistock, Buckfastleigh, and North Molton. The ores of copper have in all probability been mined from the earliest times, yet it is only during the present century that copper mines have become a really important branch of national industry. Devon Great Consols Mine was at one time the most productive and profitable copper mine in Great Britain. On an original outlay of about 1,000*l.*, the mine is said to have realised in 21 years over 1,000,000*l.* sterling in net profits, the Duke of Bedford, as mineral lord, receiving in that period the princely sum of 200,000*l.* in dues. This mine is still working, and although not yielding such profits, is making large returns, especially in arsenious acid. The total production of copper ores varies almost yearly, being greatly influenced by the market value of copper. None of the ores are smelted in Devonshire: they are simply "spalled," or dressed, that is, the gangue, or matrix, partly removed, and then shipped, chiefly to Swansea, to be smelted.

Iron ores abound in many parts of Devon. The chief are hematite, chalybite, limonite, spathic or carbonate, magnetic oxide, and micaceous iron. Hematites are worked near Brixham, Sharkham, and Smallacombe, also at Hennock and Chudleigh. A brilliant micaceous hematite raised at Brixham is ground with linseed oil into a paint, and is largely used for covering iron work. It is commercially known as "Torbay Paint," and is used by gas and water companies and in several Government departments. Spathic iron ore is found in the Teign Valley. Micaceous ore occurs near Lustleigh: it was formerly, under the name of Devonshire sand, used as a pounce. Its chief use now seems to be for mixing with graphite, and as a lubricant. Magnetic oxide was worked years ago at Hayton, near Ilsington, but of late years it has been discontinued. Although Devonshire is comparatively rich in iron, the working of the mines seems to have lacked spirit and enterprise, or in some way to have been discouraged, for the total yield of all the Devon mines in 1874 was but 21,313 tons. Succeeding years have shown a falling off, even from this small yield.

Lead occurs chiefly as sulphide or galena. The Devonshire lead mines have been famous from the most remote times: they are said to have been worked by the Romans. There is a record of their having been worked more particularly for the silver contained in the lead in the reign of Edward I., and at that time were accounted profitable. The ancient silver-lead mines of Coombe Martin were re-opened in the time of Elizabeth, and after yielding enormous profits were again closed, to be, within the last few years, again re-opened, with, it is said, satisfactory results. The Lord Mayor's cup is made of silver extracted from these mines.

Silver.—Native silver is found occasionally, but in small quantities only. The chief source is the argentiferous galena, some of which carries as much as 120 to 140 ozs. of silver to the ton. In 1857, 50,000 ozs. of silver were produced in the county, since which time the amount seems to have gradually decreased. Very recently a silver lode has been opened up at Wheal Newton, which promises to be exceptionally valuable. Some parts of the lode are said to yield as much as 2,495 ozs. to the ton. A not inconsiderable amount of silver has of late years been obtained from a cupreous iron pyrites found in several places in the county. This ore carries from 2 to 4 or even 6 ozs. of silver to the ton, as well as from 2 to 3 per cent. of copper. At New Consols Mine ranges of furnaces, lixiviating and precipitating tanks have been erected, and for some time worked to obtain the silver and copper. The process followed is an old and simple one. The ore is roasted with about 10 per cent. of salt to convert the metals into chlorides. It is next boiled with solution of salt, in which the silver and other chlorides dissolve: this solution after filtration is passed whilst hot into tanks containing scrap iron, which causes a deposition of the copper and silver in a metallic state, known as cement copper or silver. The silver is afterwards separated from the copper at the refineries in the usual way. Other processes have been devised whereby the silver and copper are deposited separately by galvanic agency.

Manganese is mined very largely in Devon. The grey and black oxides are the two ores worked. The latter, the binoxide, is by far the most abundant. It is found chiefly in the district around Milton Abbott. At times the ore is found in very grotesque forms, frequently having the appearance as though it had been fused. The ore undergoes a process of dressing, and is then shipped, chiefly to Glasgow, where it is in pretty constant demand. Devonshire yields by far the greater part of the native manganese of Great Britain.

Tin.—Although there are evidences of very ancient works indicating that tin has been mined from the remotest times almost in every part of Dartmoor, the only part of the county where tin is found, yet the amount raised is very small compared with Cornwall. The old stannary towns were Chagford, Ashburton, Tavistock, and Plympton. The three first are noted in a charter dated about 1305, and the last was constituted in 1328. Up to this period Devonshire appears to have been the principal tin yielding county, but shortly after this Cornwall took the lead and still retains it. The only ore of tin raised is the binoxide or cassiterite.

Zinc occurs as blende or blackjack in small quantities in many mines, but the amount produced in Devonshire is exceedingly limited, and certainly not of commercial importance.

Barytes occurs as sulphate in several parts of the county. In the Teign Valley it has been worked. Its use appears chiefly to be as an adulterant of white lead. The amount raised is comparatively limited.

Kaolin, the last of the minerals I have to notice, is derived from granite—is, in fact, the undissolved residue of the felspar of the granite. Kaolin may perhaps not seem to have any very prominent pharmaceutical interest, still there can be no doubt that as chemists we are greatly indebted to this material in the matter of crucibles, evaporating dishes, and such-like. But over and above this there is one paramount reason which induces me, in the midst of this gathering of eminent pharmacists, to especially emphasise this simple mineral kaolin, and yet not the kaolin, but the man who in a generation gone by discovered in this mineral and the moorstone commonly accompanying it the materials which form the basis of all true porcelain, and that man was a chemist and druggist, a native of Devon, and a citizen of this very town of Plymouth in which we are now assembled. I cannot do better than give you Worth's * account of this worthy Devonshire pharmacist, by name William Cookworthy. Cookworthy "was born at Kingsbridge, April 12, 1705, and his father, who was a weaver, died when he was a lad, leaving his family in straitened circumstances. Young Cookworthy was apprenticed to a firm of druggists in London, named Bevans, and it is stated that in consequence of want of means he had to walk to London to enter upon his duties under that firm. He won the esteem of his employers, becoming not only an able man of business, but an accomplished chemist, and by the aid of the firm established a wholesale drug business in Notte Street, Plymouth, at first under the style of Bevans & Cookworthy. With this firm, which subsequently, on the admission of his brother Philip as partner, became that of William Cookworthy & Co., Cookworthy remained connected until his death in October, 1780. He was in many respects a remarkable man, and his life is one of the *most illustrious examples of men who have risen of which even England can boast.* Emphatically self-made, he had none of the foibles which frequently mark the character of those who have been the architects of their own fortunes. An industrious man of business, a shrewd and painstaking inventor, deeply versed in the science of the day, valued in society for his geniality and power of conversation, he was at the same time one of the simplest and devoutest of Quakers, and an enthusiastic believer in the views of Swedenborg. He was withal most absent-minded, and on one occasion, while on his way to a meeting at Exeter, was so engaged by a novel which he found on an inn table that he never reached his destination. Yet he was, in the words of Sarah Champion, an 'eminent minister' in the society. 'His benevolence was as abundant as his charity was extensive,' and he had 'originality of character and a lively, entertaining manner.' He was a firm believer in the Divining Rod, and left a treatise on its uses. In short Cookworthy was a man of many sides, but always genial, courageous and persevering—a man who won the respect and esteem alike of high and low by his strict integrity, wide sympathies and varied powers; one who, having set his hand to the plough, was not ready to turn back. And this was the man who, not by accident, but by patient, well-directed research, prosecuted during his business journeys, first discovered in this kingdom the *existence* of the china clay and china stone—the kaolin and petunse—which are the necessary ingredients of true porcelain; and then—not having, like Wedgewood, been bred a potter—taught himself the potter's art, and by careful study and long-protracted experiments, extending over many years, reproduced, in England, the hard porcelain of the East, the secrets of whose manufacture he had thus attained, and gave to his country new forms of industry and new sources of wealth."

Since Worth wrote this a stained glass window has been placed in the new Plymouth Guildhall to commemorate not the least of Devon's sons, and one who in a sense is connected with ourselves, in that, like us, he was a working pharmacist, but of a generation gone to its rest.

May we, especially those amongst us who claim to be of his county, stimulated by his noble example, seek to emulate the earnestness of spirit which seems to have pervaded his innermost nature, and prove ourselves the worthy successors of this persevering, genial, sympathising, and illustrious Devonshire pharmacist.

THE INTERNATIONAL CONGRESS OF BOTANY AND HORTICULTURE AT AMSTERDAM.

(*Notes on the Exhibition of Cinchonas and the Quinological Section.*)

By M. Planchon.*

At the beginning of April an International Congress of Botany, Horticulture, and Vegetable Products at Amsterdam brought together a large number of *savants* from all parts of Europe. An international exhibition was held at the same time in the Palais de l'Industrie and in the gardens which surround it. Beautiful plants of brilliant hues, new species, and recently introduced horticultural varieties attracted the attention of horticulturists and botanists, while the less brilliant but more useful and important products of the Dutch colonies were examined by merchants and pharmacologists.

It would be beyond the scope of this journal to record our impressions of the cordial welcome extended by the inhabitants of Amsterdam and its environs to the members of the Congress and jury. Nor may we speak of the striking aspect of the country or of the celebrated hyacinth and tulip culture, which at the time of our journey had covered entire fields with a gorgeous variegated carpet. We wish to concentrate our attention at present on the special subject of quinology. The exhibition was practically confined to the Javan cinchonas. It is true there was in the same hall a very interesting series of natural juices derived from many species of caoutchouc, and also some beautiful samples of vanilla. But by far the largest space was devoted to febrifuge barks, on the first introduction of which to the mountains of the Old World the Dutch justly pride themselves. England sent no specimens from her Indian plantations, and South America was only represented by some samples of Bolivian barks, sent by M. Schukraft, Dutch Consul in those regions. It was therefore on Javan products that the jury had to report. To them we shall confine our attention.

Everyone knows that twenty-five years ago the happy idea of transporting cinchona trees from the Cordilleras of the Andes to the mountains of Java occurred to the Dutch Government. To-day, after immense toil, flourishing plantations are established in the Dutch colonies, and numerous photographs taken from nature gave the visitors to the exhibition a clear idea of the success of the enterprise. Trunks of trees attaining the thickness of the thigh show the development which these plants have attained: indeed, the barks exhibited by the side of botanical specimens prove convincingly the success of the plantations.

A still better proof than a single exhibition of specimens are the annual sales of the principal barks grown in the plantations. One of these sales took place during our stay, and we were enabled, through the courtesy of M. de Vrij, to procure the specimens which were exhibited at the June meeting of the Société de Pharmacie. We extract from an interesting report on this sale the following facts:—

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* "Transactions of Devonshire Association," 1876, Vol. VIII., p. 481.

* From the *Journal de Pharmacie et de Chimie.*

188 cases and 498 bales were sold, weighing nearly 90 tons.

The most profitable species for exportation are *Cinchona succirubra* (Pav.), *C. Calisaya* (Wedd.), and *C. officinalis* (L.).

C. succirubra (Pav.), the source of our red barks, furnished at the sale rather more than 38 tons of bark, containing in the better qualities 10 per mille of quinine, 48 of cinchonidine, 20 of cinchonine, and 8 of amorphous alkaloids, making a total of 86 per mille of alkaloids. Cinchonidine is predominant in these barks.

C. Calisaya (Wedd.) has succeeded better in Java than in British-India. It was represented at the April sale by nearly 42 tons of bark belonging to different varieties of this valuable species. The variety richest in quinine is that known as *C. Calisaya ledgeriana.* It yielded 73 per mille of quinine, 3 of cinchonine, and 8 of amorphous alkaloids; total 83 per mille. The inferior sorts contain 39 per mille of quinine.

The other varieties (*C. Calisaya Javanica* and *C. Calisaya Schukraft*) yield much less quinine—8·12 per mille only. The proportion of cinchonine in them is as large, or even larger, than that of the quinine.

Next to *C. Calisaya* must be placed *C. Hasskarliana*, regarded by some authors as a hybrid of *C. Calisaya* with some other species. There were at the sale 93 cwts. of the bark of this tree, yielding an average of 18 to 20 per mille of quinine, 8 to 10 of cinchonine, and 41 to 45 per mille of alkaloids.

The *Cinchona officinalis* (L.), (*C. condaminea*), which in America furnishes the grey Loxa barks, comes also from Java, and it is remarkable that the Javan barks yield a larger percentage of quinine than the ordinary grey cinchonas. Samples at the sale contained 35, 38, and 40 per mille of quinine, with less than 10 per mille of cinchonidine. Loxa cinchonas from Java are, therefore, quinine — not cinchonidine — cinchonas. Three and a half tons of this bark were at the sale.

C. Pahudiana gives only a small percentage of alkaloids, 7 per mille being the maximum. It flourishes well in Java, but yields inferior products. About half a ton of this bark was offered at the sale.

Finally, about a ton of the bark of *C. caloptera* was offered. This is a species of medium value, giving 36 per mille of alkaloids, the percentage consisting of 4 per mille of quinine, 20 of cinchonine, 10 of amorphous alkaloids, and 2 of cinchonidine. All these barks are obtained in Java without the process of mossing, which is adopted in British-India for the purpose of increasing the yield of bark, and its richness in quinine. [Would it not be worth while to try this process in the Dutch East Indies? This is one of the questions on which the Quinological Section of the Congress was asked to report. A body of men better qualified to frame an opinion on the subject could hardly have been collected. It numbered among its members M. Weddell (author of the "Histoire Naturelle des Quinquinas"); Mr. Howard (the historian of East Indian quinology); Hasskarl (who introduced the cinchona cultivation in Java); Phœbus, of Giessen (known by his histological studies of the cinchonas); Vogl (known by similar work at Vienna); De Vrij; Kerner (author of several chemical and therapeutical researches on the cinchona alkaloids); Johst (of a well-known German firm of quinine manufacturers); Schaër, of Switzerland (the colleague of Flückiger, and editor of the last *Pharmacopée Helvetique*), with Rijk, Coster, Walter, and other pharmacologists of Amsterdam.

The following is an abstract of an official report of the queries proposed, and the information furnished to the Congress. M. Weddell, president of the section, proposed the question of the programme:—"What is the best method of obtaining the cinchona barks, and what has experience taught us with reference to the different treatments of the various species of cinchona?" It has been remarked when part of the bark of a cinchona, or even a complete circle, has been removed, that if the wound be covered with moss, a new bark will be formed, always providing that the cambium has not been injured by the operation. The new bark, moreover, is richer in quinine than the old. This observation, made by Mr. MacIvor, scientific director of the Neilgherry plantations, is the point of departure of the treatment in use there. The details of the operation are carefully described from materials furnished by MacIvor in Howard's "East Indian Quinology."

Although we can remove annular strips of the bark and yet obtain a regeneration, this result is more sure and rapidly obtained by removing the bark in longitudinal strips. For this purpose the operator selects a tree about eight years old: he makes a horizontal incision as high as he can reach, then at each end of this incision a vertical one reaching to the base of the trunk. Raising the bark from the wood at the level of the upper incision with a knife, he separates it little by little with his fingers down to the base of the tree, where he cuts it off. He thus obtains a ribbon of greater or less length. Supposing that the tree were 30 inches in circumference, he would detach nine strips nearly an inch and a half wide, leaving nine others attached to the tree, of about the same width. He would surround the whole trunk with moss, tying it in its place, and thus guard the naked surfaces from light and air. The result is, first, a rapid cicatrisation, as in animal tissues; then an increase of quinine in the renewed parts. At the end of six or twelve months the bands of bark which were left adhering to the trunk are removed, and the trunk again swathed in moss. Twenty-two months later there is formed in the place of the bark first removed a new bark, thicker than is natural at the same age. This is removed, and the wound is again covered with moss. Six or twelve months later they remove the renewed bark from the places uncovered latest, and so on alternately. In this way bark five times renewed on the same place has been obtained.

It follows from the preceding facts that three kinds of cinchona bark can be obtained from the same trunk:—1. Natural bark subjected to no special treatment; 2. The primitive bark covered with moss during a certain time (mossed bark); 3. Renewed bark. This last requires eighteen months for its production. Thus obtained it presents, according to Mr. Howard, certain anatomical peculiarities which easily distinguish it from the primitive bark. The cells of the green layer immediately under the corky layer have a radial direction, which gives them a striated aspect in a radial section. In the ordinary bark these cells are tangential, and the striæ, when they exist, are curved concentrically.

The most important fact in the history of these renewed barks is the large increase, if not of the sum of the alkaloids, at least of the quinine, which is regarded as the most important of them.

M. de Vrij, confirming Mr. Howard's observations, communicated to the Congress the results of some unpublished experiments, whence we extract the following figures. Barks gathered from the same tree (*C. succirubra*) gave, on analysis:—

	Per cent. Alkaloids	Per cent. Quinine
1	9·28	1·16
2	10·27	1·36
3	10·10	4·60

1. Natural bark not mossed; 2. Mossed bark; 3. Renewed bark.

It will be seen that although the sum of the alkaloids has been but little increased, that of the quinine is four times as much in the renewed as in the natural untreated bark.

We might ask if this increase in the proportion of quinine would be progressive from one generation to another.

M. de Vrij believes, from experiments on samples derived from four successive renewals on the same tree, that the yield of quinine is as largely increased in the first as in the last renewal. It would, therefore, appear that the yield of quinine does not continue to increase, but probably reaches its maximum after the first treatment.

The preceding facts are beyond dispute, and it only remains to be learnt whether the increased labour is, under all circumstances, remunerative.

On this point M. de Vrij observed that "mossing" has not always been successful. In British Sikkim, for instance, the denuded trunks were attacked by ants, which rendered the operation futile. But in Sikkim there are special conditions which must be considered exceptional. Special care, again, is necessary in the choice of moss, and in the operation itself, but these being granted, the operation has always succeeded. There is in fact in the Neilgherries a company which always employs the moss, and has received good returns.

M. Kerner confirms the opinion of M. de Vrij.

Latterly samples of renewed bark from Madras have frequently appeared in the London market, and M. Korner has convinced himself by experiment of their excellent quality. These barks command four or five times the price of the ordinary barks taken from the same species of cinchona

In the meanwhile it may be asked if the process of renewal is equally profitable for all species. As the process of mossing increases only the relative proportion of quinine, especially as compared with cinchonine, the process may be of much less value for such species as *C. Calisaya ledgeriana*, which is rich in quinine, than it has proved for *C. succirubra*. This must be decided by experiment. But in any case it is desirable that the Dutch Government should try the process of mossing in their colonies, and the Congress gave formal expression to this opinion.

M. de Vrij adds that to obtain success it is essential that all the conditions shall be observed in Java which have established it in British India. He thinks that the wisest plan will be for the Dutch Government to commission M. Mons, director of the Javan plantations, to proceed to British India, and there to study on the spot the details of the process.

A GLASGOW PHARMACY.

Mr. JAMES M. FAIRLIE has just opened a striking pharmacy at the corner of Sauchiehall Street and St. George's Road, one of the finest positions in the West End of the city. As this presents some new features a brief description may be useful.

There are two windows and a door facing Sauchiehall Street, and the same fronting St. George's Road. In each window is prominent a handsome specie jar with gilt cover, and two beautifully cut Egyptian vases, which, along with the shelf furniture, have been brought specially from the Warren Glass Works, New York. Each vase has three pyramid stoppers, one towering above the other, and each stands on a rich mahogany pedestal. One side of the window is glass, and there is a large mirror at the other end, the floor being laid with encaustic tiles. Each of the glass panes in the back of the window case has the Pharmaceutical Arms richly embossed into the glass, surrounded by a handsome border. The rest of the window space is occupied with perfumery and proprietary and fancy goods. Inside the fittings correspond with this style. Entering from Sauchiehall Street a large mirror is seen in front of the dispensing counter, and glass sponge cases and other fittings are well arranged. The dispensing counter is 12 feet long, and has all the modern appliances. The retail counter is 16 feet long, and, between show cases, has a clear space of about 3½ feet for serving. A hoist at the end of this counter communicates with the laboratory below, an electric bell and speaking tube being also attached. Stretching from the entrance at Sauchiehall Street to that at St. George's Road is an elaborate circular counter and show case: behind this counter the cashier sits, and there also is a writing desk placed, with the City Directory, Pharmacopœia, &c., for the convenience of physicians who wish to consult either, or write a prescription. The fitting is the workmanship of Mr. R. O. Templeton.

This is the third establishment in Glasgow that has been fitted up with the American bottles, and it seems strange that none of the British glass bottle firms have had enterprise enough to introduce this not only handsome but useful style of bottle. The bottle is moulded with an indent in front, and the label, which is glass and painted in gold and variegated colours, is cemented into the indent. These bottles possess several advantages: the label is never destroyed unless it is broken, and if broken it can easily be renewed; if, on the other hand, the bottle is broken the label can be fitted into other bottles. The toilet, perfume, and sachet bottles are all richly cut, in addition to a handsome vignette indented label. The poison bottles are curiosities in their way—the ordinary glass bottle covered with gutta-percha, with pieces of wood indented in imitation of the bark and stumps of trees: anyone catching hold of one in the dark might fancy he had caught a hedgehog. Mr. Fairlie intends for the present to carry on his wholesale trade at the old establishment, 41 St. George's Road.

We notice from an advertisement inserted in this journal that Mr. Henry Laurance, the well-known optician of Hatton Garden, invites chemists to accept the agency for his spectacles. The business is by no means outside the range of a chemist and druggist, and we observe that some well-known pharmacists at Bury, Chesterfield, Devizes, Folkestone, Huntingdon, Peterborough, Ryde, Worcester, and elsewhere, occupy themselves already with this agency. As a new matter we bring the subject prominently before the trade.

MEDICAL GLEANINGS.

"Prescribing Chemists" still forms a staple subject of discussion in the medical journals. A specimen of the honourable manner in which the discussion is conducted by them is furnished in the *Lancet* of September 1, wherein appears a long letter signed "Ad omnia prompta." The writer must be a very learned person indeed, as a part of his opening sentence will show. He says, "As the subject has quite recently been on the *tapis*, and is even now *sub judice*, I am sure you will be glad to receive any facts bearing on this *quæstio vexata*." He then gives three "facts." These are printed over an anonymous signature, and are each mere hearsay. Supposing them to be exact, they prove nothing against the general body of chemists, who do not follow the practices there indicated. It is either ignorance or dishonesty which leads writers to present cases like these as though they were in the least degree relevant to the question at issue.

⁂

An Italian doctor (A. Hilir Selli) records in the *Rivista Sperimentale di Freniatria* some important experiments, which tend to the conclusion that coffee is a powerful antidote to strychnia. Otherwise fatal doses of the poison were administered to rabbits in strong infusion of coffee with but slight effect.

⁂

On August 22, in the Economic Section of the British Association at Plymouth, Mr. Lawson Tait, F.R.C.S., read a valuable paper on the subject of Hospital Mortality. He stated that after a great deal of trouble he had been able to extract trustworthy figures from the records of 179 hospitals for a period of six years. The three factors required to judge of the quality of the work were the average daily population of each hospital, the actual number of admissions from January 1 to December 31, and the total deaths occurring within the walls of the building. By dividing the admissions by the average population, a figure was obtained which might be termed the "activity" of the hospital—that is, the number of cases treated per annum in each bed, and dividing 365 by the result gives the mean residence. The death-rate is to be calculated as a percentage of the admissions. He found that the activity diminished and the mortality increased just as did the size of the hospital. Selecting amputation below the knee for injury as the best instance for contrasting results, the author produced the following remarkable results, and the figures showed conclusively that the causes of the increment of mortality are intrinsic to the large hospitals, and therefore entirely, or almost entirely, avoidable:—

Hospitals	Activity	General Mortality	Leg Amputation Mortality
Under 20 beds	15·2	5·17	23·52
20 to 100 beds	10·86	6·0	28·30
100 and over	12·04	7·98	42·37
Leeds Infirmary	14·21	6·78	20·75
Birmingham General Hospital ..	13·08	8·07	42·33
St. Thomas's Hospital, London ..	9·03	13·33	41·05

The case of the Leeds Infirmary showed that it was possible, by improved hygeian arrangements, to bring hospital mortality down nearly 2 per cent., and this was done solely by allowing a larger floor area and cubic space to each patient. The state of St. Thomas's Hospital was greatly to be regretted, and should immediately be altered.

⁂

An old man, a herbalist, has been tried by the magistrates of South Molton, in North Devonshire, for pretending to be, in spite of his unbewitching sex, a witch, and in that capacity to cure diseases. In one case he was sent for by the husband of a poor old woman, and, representing himself as only an humble instrument in God's hands, applied to her body metallic rods marked with the signs of the Zodiac. With all his pious pretensions, he had an eye to profit. He demanded 25*s.* for his services, and during the five hours he was in the house consumed a glass of rum-and-water, with some biscuits. The remedies were ineffectual. The old woman died, and he was charged before the magistrates with using certain subtle crafts, means, and devices, by palmistry, or otherwise, to deceive and impose on Her Majesty's subjects. For the defence it was urged that, at the outside, he was a mesmerist, and that mesmerism was, if not an orthodox, at least a recognised process of the medical profession. The magistrates thought otherwise, and sentenced the "white witch," as he is called, to a month's imprisonment. Notice of appeal has been given to the Quarter Sessions. "The case," says the *Lancet*, "is a phenomenon altogether discreditable in the latter part of the nineteenth century; and though we think with little satisfaction of the old herbalist being shut up for a month in prison, we shall not altogether regret it if it leads him to forsake the practice of such pious frauds as the above. There is much crass superstition among the people in country places, and those who practise upon it should be discouraged."

LEGAL & MAGISTERIAL.

CASTOR OIL PILLS.

At the Cannock Petty Sessions, on Monday, September 3, castor oil pills were again in trouble. The magistrates were B. Gilpin, Esq., and Colonel Harrison. The subjoined report is published by the *Wolverhampton Chronicle*:—

George Ridding, grocer, of Walsall Road, Cannock, was charged by Mr. J. G. Horder, inspector under the Food and Drugs Act for the southern division of the county, with having sold a certain drug, to wit, castor oil pills, the same not being of the nature, substance, and quality demanded by the purchaser; also with selling a compound drug not composed of the ingredients in accordance with the demand of the purchaser.

Mr. Hutchinson (from the Clerk of the Peace's office, Stafford) prosecuted, and Mr. James E. Underhill represented the defendant, instructed by Messrs. Reade Brothers, wholesale druggists, of Wolverhampton, the original manufacturers of the pills in question.

George Toy, assistant to Mr. Horder, proved purchasing the pills. The boxes were labelled "Castor Oil Pills—one or two to be taken occasionally and at bedtime."

Mr. Horder said he received a sealed packet of the pills, which he delivered to the public analyst for examination.

Mr. E. W. T. Jones, F.C.S., of Wolverhampton, and public analyst for the southern division of the county, said he had analysed the sample of pills delivered to him by Mr. Horder on May 25 last. The six pills weighed 18·8 grains, which was equal to about three grains per pill. He took four of the pills and examined for mercury, with the result that he detected the presence of about 9·98 per cent. of calomel in the whole mass. Besides this, there were aloes, jalap, rhubarb, ginger, and a trace of colocynth, with one or two other substances which he was unable to identify in the sample. He did not discover the slightest trace of castor oil in the pills. He considered that the compound would be injurious to health, as it contained calomel under the disguise of so innocent a name as castor oil.

By Mr. Underhill: It was not possible to make castor oil pills, and it did not necessarily follow that persons would know this, and understand that the pill was another compound. It would not be possible to put more than a grain of castor oil in a pill, at which rate 200 pills would be necessary for a dose—(laughter). He knew that it was common to substitute a compound pill, all over the country, and sell them as castor oil pills. He could not say that the castor oil pill had been understood by the public for 25 years to be an aperient pill merely. He was certain that castor oil pills would not produce the same effect as castor oil itself; in fact, he should not take a castor oil pill to be an aperient at all. He knew that the pill in its present form cost the manufacturer a great deal more than if castor oil were used, and, therefore, it would be no saving to use the present ingredients. There was about the third of a grain of calomel in each pill, and an ordinary dose of calomel was generally more than this. He knew that the Sanitary Committee of the Wolverhampton Town Council had had these pills under their consideration, and had sent a caution to the chairman of the Local Pharmaceutical Society respecting them. Since that time Messrs. Reade had issued small circulars to be given away with each box of pills, stating that the pills contained no castor oil, but were simply aperient.

Re-examined: There had been convictions for the sale of similar pills, where the contents of the pill were not so strong as in the present case.

Dr. Day (Fellow of the Royal College of Physicians), Stafford, said he had made a rough examination of the pill and found the substances in it mentioned by Mr. Jones. He thought that if ignorant persons bought these pills, under the impression that they contained castor oil, and knowing that castor oil was so innocent a laxative, that it could be given to any sex at any age, the use of the pills as such would be very objectionable, because they contained calomel, aloes, and colocynth. Even admitting that there were persons and conditions in which these pills might be taken with impunity, and in some cases with advantage, still there were other persons and conditions where, in his judgment, they would be very objectionable, and often injurious. Witness described different diseases and conditions of health in which the use of the pills would be inappropriate, under the impression that a simple laxative was being taken. To the ordinary average of cases the quantity of mercury contained in two of the pills would not be injurious, but there were also certain conditions in which it would produce salivation, and, if continued, even death. He had himself salivated a lady with half a grain of calomel. In his opinion he did not think it was the metallic mercury which salivated, but the chlorine or oxygen combined with the metal, and given up in a nascent form.

Cross-examined: He admitted that the cases he had mentioned would be exceptional ones. He was not aware that there was a difference of medical opinion on the action of calomel in kidney disease. He was unaware until he was consulted on the subject that there were any such things as castor oil pills.

Mr. Underhill, in the course of his remarks for the defence, said the Act under which the offence was brought was useful in cases where articles were adulterated, and not of proper quality, but it did not apply in the present case. This was a "test" case, as the solicitor for the prosecution had stated. The Act stated, "Any person who shall sell to the prejudice of the purchaser, any article, food, or drug, which is not of the quality, substance, and nature demanded by the purchaser, is liable to a penalty not exceeding 20*l*.," but to which there were certain exceptions. He argued that the prosecution had shown no infringement of this clause. They had proved that castor oil pills had been sold for many years all over the country, and that it was physically impossible to admix any quantity of castor oil with the pills. So it was quite plain that it was impossible to comply in the latter respect. He contended that they had sold the article which they had contracted for. They did not sell the public what they did not demand, for the public asked for "Reade's Castor Oil Pills," and they obtained them. It was understood that the pills were an aperient medicine, and it was not necessary, because they were called by the name of castor oil, that they should contain any of that substance. Again, it was only possible that they could believe the present pills injurious if they took for granted what Dr. Day had said, viz., that it might do some persons injury, if they thought they were taking castor oil and were not, but with the common average of people it would be beneficial. He should call a medical gentleman from Wolverhampton who would tell them on the contrary that the pills were not objectionable. He concluded by stating that the Act gave an exception in the case of proprietary or patent medicines. Now this was a proprietary medicine, as Mr. Reade would tell them. The component parts of the pills were from a private recipe which belonged to the firm, and the case therefore failed in this way. He called

Mr. T. Reade, manufacturing chemist, of Wolverhampton, who said he had been connected with the trade 17 years. The pills sold as castor oil pills were a proprietary medicine. He had never had any complaints as to the effect of the pills during the 25 years they had been manufactured.

Cross-examined: The same pills could be made by any person in the kingdom if the component parts were discovered. He was not aware that it was the universal custom to name proprietary medicines as Reade's, Cockles', or Jones' pills.

Mr. James Mason, chemist, of Stafford, said he had been in practice for 40 years. Castor oil pills had been sold for about 20 years as an article of commerce. They did not contain castor oil, but were supposed to act in a similar manner.

Cross-examined: As a respectable tradesman he should not sell the pills labelled "Castor Oil" without informing the public that they were a substitute. He agreed with Dr. Day, that if taken habitually the pills might be injurious to some persons.

Mr. F. A. Manby, surgeon, of Wolverhampton, was next called. He stated that the cases mentioned by Dr. Day were very exceptional ones. He considered the pills harmless in the great majority of cases, and of a mild character.

Cross-examined: He did not think, speaking morally, they should be labelled "Castor Oil Pills."

The Bench, after some consideration, said they had decided to convict on the ground that the pills were not composed of ingredients in accordance with the purchaser's demand. Defendant would be fined 2*l.* and costs—14*l.* 9*s.* As regarded the proprietary character of the medicine, they had nothing to say.

[Messrs. Reade Brothers wrote to the *Birmingham Post* on the day after the publication of a report of their trial, to remove a misunderstanding produced by that report. They state that the opinions of the medical witnesses called entirely upset the dictum of the analyst that the pills were injurious to health. They go on to say:—"We need not point out that any medicine improperly used, even castor oil itself, would be injurious, while when used as directed it may be most beneficial. The only effect of this prosecution will be this: that a perfectly useless quantity of castor oil will have to be introduced into such pills, and they will be labelled 'Compound Castor Oil Pills,' as we had already apprised our customers of the fact, if they needed such information, that the pills were not made of castor oil. How such pills came to be known throughout the country as castor oil pills we cannot say; but such has been the almost universal custom throughout the trade, and when drugs have come to be called by such names as oil of swallows, oil of bricks, oil of worms, dragon's blood, &c., it will be easily understood how a pill offered originally as a substitute for castor oil has at length been known to the public and the trade as a castor oil pill. If an article called by this name had been made with castor oil and other inert ingredients, a perfectly useless thing would have been sold; and yet virtually the prosecution say that this useless composition should have been supplied instead of the preparation which has given complete satisfaction for the last fifteen years."]

PROSECUTION UNDER THE ARSENIC ACT, 14 & 15 VICT., C. 13.

On Thursday, September 6, Thomas Greensmith, chemist and druggist, Rugeley, appeared before the magistrates in answer to a summons charging him with selling arsenic without having recourse to the formalities required by the statute.

Mr. Henry Glaisyer, of Birmingham, solicitor to the Chemists' and Druggists' Trade Association, appeared for the defendant.

P.C. Ratcliffe, stationed at Marston, near Stafford, was called, and stated that on August 31 he went to defendant's shop in plain clothes and asked for rat poison. The assistant recommended Battle's Vermin Killer, but witness said he was to take arsenic. Defendant then came forward and inquired for whom it was wanted, to which witness replied that it was wanted by Mr. Dinneford, head gardener to Col. Eustace, at Wolseley Hall, for the purpose of killing mice which had got into the vinery. The assistant then weighed and wrapped up the poison, which was labelled, and handed it to witness, who paid 4*d.* for it, and signed an entry which defendant had made in a book respecting the sale. Witness was a stranger to defendant, and there was no one present at the time of sale known to witness, and no such witness attested the entry in the book in the manner required by the statute. In cross-examination witness admitted that he was not sent by Mr. Dinneford, and that all he had said respecting the purpose for which the arsenic was required was untrue, but added that he had been instructed to tell these falsehoods by the chief constable. In answer to Mr. Glaisyer's inquiry whether he knew that he had rendered himself liable to a fine of 20*l.*, witness replied, with surprise, that he was not aware of it.

Mr. Glaisyer then addressed the Bench for the defence, saying that, although he could not contend that the defendant had complied with the formalities of the statute in every minute particular, still he had done so in every respect except that of requiring the presence of a witness to the sale; for instance, defendant had labelled the packet of poison "Arsenic, Poison," in addition to his own name and address; he had also made an entry in his Poison Book of the particulars required by the statute, and this entry had been signed by the person asking for the poison. The reason why defendant did not insist on the presence of a witness known both to the person asking for the poison and to himself was that Mr. Dinneford, who was represented as the actual purchaser, was well known to defendant, and was, in addition, a constant customer at his shop. Mr. Glaisyer then went on to criticise the way in which the trap had been laid for the defendant, and said that the poison had been obtained from him in a way which was "dishonest, disgraceful, and he was glad to add, illegal also." He then referred to the 4th section of the statute under which the proceedings were instituted, and pointed out that anyone who, at the time of purchasing arsenic, should make use of false representations in respect of those particulars concerning which the vendor is at liberty to inquire, should be liable to a penalty not exceeding 20*l.* In conclusion, Mr. Glaisyer represented to the Bench that a very small fine would meet the justice of the case.

The Bench, after some consideration, inflicted a fine of 1*l.* and costs.

Mr. Glaisyer at once applied for a summons against the witness Ratcliffe under the 4th section of the statute, explaining that he did so in the interest of chemists and druggists all over the country, who were constantly harassed in their business by means of falsehoods told by official spies.

The magistrates' clerk informed the Bench that they had no option in the matter, and must issue the summons.

The case will be heard on Thursday, September 20.

DRUG ROBBERIES.

Mr. J. T. Gray, chemist, Mill Street, Crewe, has been robbed of a variety of articles by a man in his employ, named Paul Cetti. Having suspicions, Mr. Gray watched his shop, and one evening the prisoner entered about 8 P.M. The place had been closed since noon. Mr. Gray immediately communicated with Inspector Morris, who proceeded to the offender's lodging, and there awaited his arrival. When he came in there were found under his coat six wax candles, a bottle of paint, a packet of teething powder, a bottle of linseed, and a packet of tobacco. In the house were found two bottles of rape oil, a bottle of sarsaparilla, a bottle of spirits of wine, three sheets of emery cloth, four squares of scented soap, a bottle of coaguline, and many other things which Mr. Gray identified as being his property.

Cetti was brought before the magistrates on August 16, and pleaded guilty. He was sentenced to two months' imprisonment, with hard labour.

EXPENSIVE EXCITEMENT.

James Wilby, chemist and druggist, Hoyland, was recently charged at Barnsley Town Hall with assaulting the police. It appeared that on the 27th ult. the defendant was seen behaving in a very excited manner in the Friendly Society's Demonstration field. He was twice spoken to by the police, and on the second occasion used "language," and caught hold of the constable, but was thrown down himself, and put out. He then tore two buttons off the constable's coat, struck him, and fell down himself. He was helped up by the police, and tried to go towards the field, but was prevented. At 11.30 P.M. the same night he was seen outside his own house using "language," calling for the police, and rousing the neighbours. He was fined 20*s.*, and costs, 2*l.* 18*s.* 6*d.* The Bench considered he was not drunk, but excited.

ADULTERATED SODA WATER.

At the Cambridge Police Court, last week, Mr. John Yeomans, chemist and druggist, Petty Cury, was charged with selling as soda water a mixture which was adulterated.

Mr. Apjohn, public analyst, certified that two samples contained ·16 grain of copper in the gallon, and also a minute quantity of lead, but no soda (sodium bicarbonate). In his opinion, soda-water containing this quantity of copper and lead was injurious to health.

The defendant said he paid great attention to the manufacture, and the vessels were tin-lined to prevent contamination. Every care was taken. He made the soda-water of different strengths of soda, according to the requirements of the public. If he put in sufficient soda to satisfy the analyst, with the Cambridge water they would have a soapy compound, and this the public did not like.

The Magistrates' Clerk said it was not a question of degree here, but of total absence.

The defendant said that if he put in 15 grains of soda he should not please the public.

The Magistrates' Clerk: You should not call it soda-water, but Yeomans' popular mixture.

Mr. Balls (one of the magistrates) said the serious part of it was that, while being devoid of soda, the liquid contained copper and lead, which were certified to be injurious to health.

Defendant said he did not know how they came there.

The magistrates inflicted a penalty of 5*l*.—*Standard.*

FAILURE OF A PROSECUTION UNDER THE MEDICAL ACT.

On Friday, August 3, under the 40th clause of the Medical Act, 1858, a homœopathic practitioner named James Brown Dixon, LL.D., U.S., 1857, and "Doctor in Dental Surgery, 1845," was charged at the Thames Police Court by Dr. R. H. S. Carpenter (secretary to the Medical Alliance Association) with unlawfully using the title of Doctor of Medicine, thereby implying that he was recognised by law as such. Mr. Carpenter said that defendant had been cautioned not to continue using the title of "Doctor," and had answered that his qualifications were registrable, but he declined to produce them for inspection or to say from whom he obtained them. Witness read from a photograph of Mr. Dixon's house the following inscription:—"Dispensary. One shilling a week or three shillings a month. Dr. Dixon. Homœopathic Pharmacy." Mr. J. P. Hentsch, M.R.C.S., L.S.A., assistant-secretary to the association, said he had seen at a patient's house a circular in which Dixon described himself as "Dr. Dixon, Homœopathic Practitioner and Accoucheur, Doctor in Dental Surgery, 1845." James Haigh said that on the 11th ult. he went to Dixon's house, when defendant said, "I am Dr. Dixon." Dixon gave him a packet of powders, for which he charged one shilling. Defendant's counsel maintained that defendant had not been guilty of wilful falsity, and that it was necessary to prove this to bring him within the meaning of the Act. The magistrate, Mr. Lushington, thought so too, and said that the fact of Dixon having written on his window "Homœopathic Pharmacy" would be such a qualification to the title he used as not to bring him within the operation of the Act. The summons was dismissed, and upon application for a case for a superior court being made, Mr. Lushington refused to grant it, for the reason, he said, that the facts of the case would not warrant his doing so.

NATIONAL CHEMICAL COMPANY'S BLEACHING AND DEODORISING FLUID.

This is wrapped neatly, and retailed in 6*d*., 1*s*., and 2*s*. bottles, holding ½ pint, 1 pint, and 1 quart respectively. It claims to be the best, cheapest, and most useful and reliable of disinfectants. It is recommended for washing all kinds of linen, and is said to give them a beautiful whiteness. It is a solution of chloride of lime, and cannot be sprinkled on carpets or used for washing any coloured fabrics. The saleability of the article would be much increased if some substitute were found for the very unpleasant sticky compound with which the cork is covered, and if, at the same time, the corks were so inserted that it would be possible to extract them entire.

FLETCHER'S JET LINEN MARKER.

A marking ink to be used without preparation. When used the writing must not be heated, but must be left two or three days, and then on the first washing it will become an intense black. The colour deepens with age and use. The ink is to be retailed at 1*s*. The maker also claims that the marks cannot be removed by chemical means like the ordinary marking inks. Manufactured by Mr. Fletcher, of Warrington.

MIRACULOUS PENS.

We have been much pleased with an ingenious French invention for which Messrs. Mawson & Swan, of Newcastle-on-Tyne, are the English agents. It is a pen inside which is fixed a small block of an aniline compound. By simply wetting the pen an ink is yielded, the colour of which may be, according to the pen used, either blue, black, or red. The ink seems very permanent, and can be copied. The pens are cheap, and are sold on cards containing half-a-dozen on each.

"SANITAS."

The production of "Sanitas" as an article of commerce is an interesting outcome of the somewhat perplexing chemical researches on essential oils which the British Pharmaceutical Conference has for some years had brought before it by Mr. C. T. Kingzett.

The experiments of Dr. Day, of Geelong, alluded to in a letter from that gentleman in our last issue, and of a large number of observers in this and other countries, have placed beyond doubt the healthful character of the exhalations of the eucalyptus tree, of the pine tree, and of turpentines generally. Mr. Kingzett and Dr. Day have shown experimentally that many essential oils yield peroxide of hydrogen, and have demonstrated the action of that agent as a disinfectant in hospitals and elsewhere. Mr. Kingzett has further investigated the process of this formation of peroxide of hydrogen chemically, and his experiments show that when turpentine undergoes atmospheric oxidation in the presence of water changes occur which result eventually in the production of peroxide of hydrogen, camphoric acid, camphoric peroxide, camphor, &c.

The process for making "Sanitas"—itself a patent—is based upon this change. At the works, which we visited a few days ago, we were at once greeted with an aroma which recalled an almost forgotten summer day's drive through the pine forests of Norway. As a matter of fact, Norwegian turpentine was being acted upon in a series of large stone vessels, partially filled with water. The liquids are kept at a temperature of about blood heat for some three days, and during all the time a constant supply of fresh air is blown into the vessels by an engine specially adapted. Not more than about 10 per cent. of the turpentine is converted, and most of the remainder passes off and is condensed, being available for future operations. The solution obtained by this process is "Sanitas," and, theoretically at least, it is the health-giving principle exhaled by the pine and eucalyptus trees. That it does possess antiseptic and disinfectant properties is unquestionable, but we shall not here attempt to determine its exact place in the scale of the many chemicals with that character. It certainly possesses the desirable qualifications of being of a slight pleasant odour and absolutely stainless. A preparation is made by the company with an appropriate perfume in combination, which makes a pleasant and useful adjunct to the toilet.

FLETCHER'S IMPROVED BLOWPIPE.

This blowpipe is an ingenious application of the principle of the "hot blast" to the mouth blowpipe. What is usually the projecting nozzle is in this instrument curved into a light spiral in such a way that when the blowpipe is in use that part of the flame not blown aside by the jet heats the spiral. This heated spiral heats the air passing through it, and thus, besides preventing any condensation of moisture, considerably increases the power of the flame. Fine platinum wire can be melted by this arrangement, a task impossible with the old tool. The blowpipe packs into a very small space, and, as there are no projecting angles, is more convenient to carry than the old one.

Correspondence

THE PRODUCTION OF PEROXIDE OF HYDROGEN FROM OILS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Dear Sir,—The letter of Dr. Day, contained in your last issue, calls for but brief reply from me. It adds no new support to his claim, which was refuted by me in a letter published in your journal for last March. To that statement I beg to refer your readers. I may only add that the real difference between Dr. Day and myself appears to me to lie in the fact that he is a medical gentleman and I am a chemist.

Yours faithfully,
Charles T. Kingzett.

MISNOMERS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—It occurs to me that actions will lie against many other articles now sold by chemists and druggists if the principle underlying the late decision in regard to the castor oil pills is allowed to prevail, for here, surely, we have the strict letter of the law over-riding its spirit: in fact, the exaction of the pound of flesh in another form. The Adulteration Act had no intention, I suppose, of going thus far. It was passed for the benefit and protection of the public against fraudulent usage in trade; but was the sale of castor oil pills (so called) a fraud? What will it advantage the public to have pil. rhei co. now made up with a drop or two of castor oil?

It is all very well to say people must have what they ask for; but what is to be done with those who have been asking for the wrong thing all their lives? I am called upon for steel pills, but tender pil. ferri co. instead, which can hardly be called steel. Is this also a fraud? Again a pennyworth of salt of lemon is in daily demand, but a salt of sorrel is given, and not a salt of lemon at all, unless the ess. lemon can be called so. Is this likewise wrong? What is to be done about crab's eye and foxes' lungs? Are the days coming when I shall be enabled to write up, "Another dragon just slaughtered," in order to supply the blood of St. George's enemy? Will "bear's grease" stand the test of legal acumen? How about "buttery oil," "oil of St. John," and many others?

If some of your readers would send any of these odd names that they may be in possession of to The Chemist and Druggist, with the name of the article sold as the Simon Pure, it might form a useful and interesting collection.

Without having any sympathy with that state of things that has brought about the possibility of selling sp. ætheris nit. at 2*d.* per oz., I think I am not going out of my way in concluding that we are being most unnecessarily harassed with these petty prosecutions.

I am, sir, yours, &c.
S. G.

CANINE TOXICOLOGY.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—In our city all dogs appearing to be "waifs and strays" are "collared" and "run in" by the police, and if not claimed in a few days are "condemned to die." My attendance is then requested to administer the "douceur." I may, therefore, justly say that I have had some experience in "killing dogs."

I cannot agree with Mr. Cocking that "the popular notion that a few drops of prussic acid and all is over" *cannot be upheld*, as my practical experience witnesses to the contrary.

In the instance of which Mr. Cocking speaks, it must have been as tedious and disagreeable to the administrator as to the dog himself. Such a "try and try again" principle should be remedied.

There are several difficulties in the way of giving poison to strange dogs, for it is no child's play to approach some animals, and the assistance one gets at such a time is very limited, as a rule. The owner may say "he will hold the dog's mouth open." So he may, but will invariably let it go before the poison is swallowed: the dog shakes his head and ejects the fluid, and will require more than ordinary coaxing to "have another turn." Another brute may be too ferocious to allow anyone to handle him, and will very carefully inspect, and generally refuse, to touch a piece of meat containing anything "foreign" thrown to him by a stranger.

Another may swallow enough "acid" to stupefy, but, to your chagrin, will "come to" again, and be unapproachable.

The plan I adopt is simple, but very successful. Drive a staple higher than the "patient's" head, and draw the chain through up to the collar, bringing his forelegs a little off the ground—the dog is thus prevented from snapping. In such position the breath is taken by "gulps," and, watching your time, the dose can be poured into the throat, and, on pinching the nostrils, is swallowed at once. The chain can then be slackened until the dog stands, and the result is sure. I always use about two drachms of a freshly-opened bottle of Scheele's acid, and have never had to repeat the dose, neither have I seen it cause a dog to vomit. The conclusion I would arrive at, then, in Mr. Cocking's case, is, that no allowance for waste was made, and, consequently, not sufficient acid swallowed to cause death. With respect to the strychnine administered, I should certainly be of opinion that the result was due to the first, and not the second quantity—for this reason, dogs never masticate, but "bolt" soft food, and, as the poison was, doubtless, put *inside* the meat, the whole would remain in the stomach some time before the strychnine would be dissolved out and take effect.

The excruciating pain that follows a poisonous dose of strychnine at once condemns it as an agent, while the action of properly administered Scheele's acid is quick, and gives but the one pain, as the heart is paralysed. I, therefore, would give the preference to the "acid," or cyanide of potassium, or recommend an "ounce of lead."

Yours obediently,
Rochester: August 20, 1877. Celeriter.

Coloured Borax Varnishes.—It is well known that an aqueous solution of borax is able to dissolve shellac, forming a kind of varnish, to which any desired colour can be imparted by mixing with pigments. Major Dr. Kahl, of Dresden, has communicated to the Dresden branch of the Saxon Society of Engineers the results of a large series of experiments made with these varnishes. He reports that they are very cheap, and dry very quickly, but they scale off from wood too easily. When this varnish is coloured black with India ink and applied to paper, it possesses a fine gloss, but other colours, especially carmine, when mixed with this solution acquire an impure shade, and many pigments cement together in this solution, forming a hard and totally useless mass. The black shoe polish sold for ladies' boots is often made by adding some black pigment to this shellac solution. For bronze boots, rosanilin may be dissolved in any alcohol varnish.—*Scientific American.*

Trade Notes.

In our last Messrs. Sang & Barker were referred to as of Glasgow. This should have been Edinburgh.

⁂

Mr. C. F. Cripps, of Rockhampton, Queensland, publishes a local almanac, well known in the colony, and will take advertisements of patent medicines for it, accepting payment in kind.

⁂

We have received a new issue of Lynch & Co.'s catalogue of druggists' sundries. In this catalogue every article is numbered, so that much labour is saved to buyer, and much uncertainty to the seller.

⁂

Messrs. Wright, Layman & Umney, of Southwark, gave their *employés* an excursion to Egham and a dinner at the Barley Mow on August 18. "The Queen," "The Firm," and a few other less important personages were heartily toasted after dinner, and some smart competitions followed in racing, jumping, and throwing for prizes. Mr. J. Attwood was starter, Mr. F. J. Smith referee and handicapper, and Mr. W. J. Barnard judge.

⁂

The business established by the late Mr. M. Jackson at 65 Barbican, as manufacturer and importer of scientific apparatus and pure chemicals, has been purchased by Mr. John Orme and Mr. H. M. Capner, who will conduct it under the style of M. Jackson & Co. Mr. Orme has managed the business since its commencement, and Mr. Capner has manufactured and supplied a large proportion of the physical apparatus sold.

⁂

A Limited Liability Company has been formed to purchase from the executors of the late Mr. Matthew Pomfret the goodwill, plant, stock-in-trade, and other effects of the business of aërated and mineral water manufacturer carried on by him upon leasehold land and premises situate in Albion Street, Elton-in-Bury, in the county of Lancaster. The company was registered on July 17, with a capital of 16,000*l.*, in 5*l.* shares, the following being the first subscribers:—

	Shares
Henry Stacey, Bury, innkeeper	10
Abraham Lord, Bury, innkeeper	10
Edmund Whittam, Bury	10
James Kirkman, Bury	10
Joseph Frost, Bury, innkeeper	10
Henry Ainsworth, Bury, auctioneer	100
Thomas Hoyle, Bury, ginger-beer manufacturer	100

Registered without articles under Table A.

⁂

Indiarubber Plasters.—Mr. George J. Seabury, of New York, a partner in the firm of Seabury & Johnson, of that city, has arrived in London, and now brings before the notice of English pharmaceutists the plasters for which his house has attained an unrivalled reputation in the United States and elsewhere. We have had the opportunity of examining samples of these products, and they are in many respects worthy of careful attention. For the manufacture of plasters they have utilised indiarubber as a base. This is employed in a purified form, and with it the various medicinal agents are incorporated. The result is a plaster which is always pliable. The plasters may be folded in any manner without cracking them. As sent out, they are protected by a gauze covering, but the rubber combination ensures adhesion without heat or moisture. It is also said to act as a preventative. Messrs. Seabury & Johnson send out a line of various margined plasters of a special size—7½ by 5 inches—strengthening, arnica, belladonna, capsicum, and others, on perforated cloth, elegantly put up, and sold at a very moderate price. Belladonna and blister plaster they supply in rolls, and they also make an excellent mustard plaster spread on flexible cotton cloth, which they sell in rolls or sheets. We advise the trade to look over Messrs. Seabury & Johnson's list, which will be found on another page, and to take an early opportunity of examining samples.

GAZETTE.

BANKRUPTS.

Chapman, John, 5 Cheriton Gardens, Folkestone, surgeon. August 10. At C.C. Canterbury, August 27, at 2.

Gibson, William, Crown Street and Smithdown Road, Liverpool, mineral water manufacturer. August 16.

LIQUIDATIONS BY ARRANGEMENT OR COMPOSITION.

Notices of first meetings of creditors have been issued in re the following estates. The dates are those of the "London Gazette" in which the notices first appeared.

Clapp, William John, Nantyglo, Monmouthshire, surgeon. August 18.

Ediss, George Newell, Holmfirth, Yorkshire, surgeon. September 7.

Ellis, Thomas Jones, Four Crosses, Festiniog, chemist, grocer, and confectioner. August 7.

Horsey, James Charles, trading as J. C. Horsey & Co., 56 Leadenhall Street, 32 Tuilerie Street, Hackney Road, and 77 Fouldon Road, Stoke Newington, gum merchant. August 27.

Lambert, Thomas David, Aysgarth, Yorkshire, chemist. August 10.

Ling, John Mitford, Huntspill, Somerset, surgeon. August 7.

Margetson, William Parker, East Street, Walworth, mineral water manufacturer (sep. creditors). September 8.

Melvin, James, Victoria Street, Bristol, chemist. September 1.

Moger, Frederick Slade, Carshalton, surgeon. August 23.

Norman, Edward, Howard Street, Rotherham, chemist and tobacco dealer. August 22.

Pope, Alfred Crosby, 2 Finsbury Circus, and Moselle Villa, Lee, surgeon. August 27.

Raworth, Harrison Walker, High Street, Chesterfield, chemist. August 10.

Stirzaker, John, and Haigh, George, Lindley, Huddersfield, manufacturing chemists.

Tomlinson, Thomas, and Tomlinson, Joseph Edward, trading as Tomlinson, Tomlinson & Co., 10 Shudehill, Manchester, druggists. August 24.

Trow, Alfred Gibson, 45 Smallbrook Street, Birmingham, chemist. August 9.

Wakefield, Henry Edward, St. Ann's Well Road, Nottingham, chemist. August 18.

Wood, Benjamin, and Appleby, Thomas, Enfield Road, Leeds, confectioners and druggists. August 4.

BANKRUPTCY ANNULLED.

Leete, William Waples (July 21), Oxford Street, Manchester, chemist. August 13.

PARTNERSHIPS DISSOLVED.

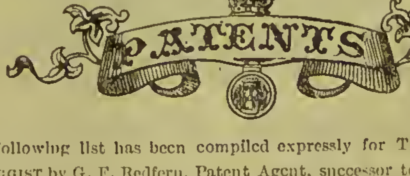
Davison & Robinson, York, chemists.

Hughes & Allwoon, Macclesfield, surgeons.

O'Connor, T. & F., March, Cambridgeshire, surgeons.

Oldham & Swanwick, West Hartlepool, surgeons.

Wylie & Houlbrook, Skipton and Crosshills, Yorkshire, surgeons.



PATENTS

[The following list has been compiled expressly for The Chemist and Druggist by G. F. Redfern, Patent Agent, successor to L. de Fontaine-moreau & Co., 4 South Street, Finsbury, London; and at Paris and Brussels.]

Provisional Protection for six months has been granted for the following:—

1506. W. Hazell, stay and corset manufacturer, and R. Day, manager, both of Farnham, Surrey. Improvements in stays, corsets, belts, and other like appliances for giving support to the spine. Dated April 18, 1877.

2208. A. P. Rochette, of Petit-Quevilly, near Rouen, France. Improvements in washing wool, and in solutions employed for this purpose. Dated June 6, 1877.

2247. F. T. Bond, of Gloucester, doctor of medicine. An improved antiseptic and disinfecting combination, and in the mode of supplying the same for use. Dated June 9, 1877.

2361. C. Warner, of Vauxhall Walk, Lambeth, London, mineral water manufacturer, and W. Tully, of Thomas Street, Kennington Park, Surrey, engineer. Improvements in and relating to stoppers for bottles, and in apparatus to be employed in connection therewith. Dated June 16, 1877.

2514. N. Thompson, of Southampton Buildings, London. Improvements in the construction of stoppers for bottles, jars and other hollow articles. Dated June 29, 1877.

2540. J. S. Clarke, of the Corn Market, Derby. Machines for washing and soaking bottles and other articles. Dated July 2, 1877.

2564. S. Gee and G. Gibbs, both of Leeds. Improvements in the necks of bottles, jars, and other vessels, and in apparatus for forming the same. Dated July 4, 1877.

2594. H. M. Drummond, of Irvine, Ayrshire, and W. J. A. Donald, of Glasgow. Improvements in the manufacture of chromates. Dated July 5, 1877.

2610. J. Pearson, of Rock Villa Oil Mill, Glasgow. Improvements in oil presses. Dated July 6, 1877.

2612. P. Spence and F. M. Spence, both of Manchester, manufacturing chemists. Improvements in the manufacture of alum. Dated July 6, 1877.

2655. R. Dixon, of 7 Garden Lane, Rochdale, Lancashire, drysalter. A new disinfecting dry soap in powder, and method for manufacturing the same. Dated July 10, 1877.

2603. A. C. Hempel, of 108 Kennington Road, Surrey. Improvements connected with pin fasteners and springs for artificial gums and palates. Dated July 18, 1877.

2736. G. W. von Nawrocki, of Berlin. Improvements in the treatment of fœcal matters for the production of manure therefrom. Dated July 17, 1877.

2741. R. Marston, of Leicester, dentist. Improvements in dental appliances. Dated July 18, 1877.

2781. C. S. Gorman, of Irvine, Ayrshire, chemist. Improvements in the manufacture of chromates of potash and soda. Dated July 21, 1877.

2784. R. U. Etzensberger, of the Midland Hotel, St. Pancras, London. Improvements in apparatus for making infusions or extracts from substances by steam pressure. Dated July 21, 1877.

2792. W. S. Taylor, of Liverpool. Improvements in and relating to apparatus for generating carbonic acid for the manufacture of aërated waters and for other purposes. Dated July 23, 1877.

2801. P. P. E. M. Koch, of 86 Boulevard Leopold, Antwerp, Belgium. Improvements in the preservation of food and of substances liable to fermentation or decay, and in apparatus employed therein. Dated July 23, 1877.

2802. B. A. Oakes, of 8 Russell Road, Holloway, London. Improvements in apparatus for drying fruit, vegetables, and the like. Dated July 23, 1877.

2842. R. W. Wallace and C. F. Claus, both of the Chemical Works, Southall, Middlesex. An improved process for utilising gas liquor in the manufacture of carbonate of potash and other salts and sulphuric acid, and in apparatus therefor, which apparatus is also applicable for other like purposes. Dated July 25, 1877.

2844. C. J. Wollaston, of Kensington, London. Improvements in the treatment of sewage and in deodorising and disinfecting substances resulting therefrom and other offensive matters. Dated July 25, 1877.

2858. J. S. Campbell, of Sligo, Ireland. A new or improved fabric or filter for filtering chemicals or liquid substances. Dated July 26, 1877.

2882. W. J. Bouser, of Highbury New Park, London. Improvements in the means of preserving in a fresh and sound state meat, poultry, and fish. Dated July 28, 1877.

2884. A. A. Croll, of Coleman Street, London. Improvements in the manufacture of sulphate of alumina, and in apparatus employed therein. Dated July 28, 1877.

2886. J. H. Wright, of Wootton Bassett, Wiltshire, corn merchant. An improved refrigerator for cooling milk and other liquids. Dated July 28, 1877.

2926. J. Twentyman, of the Glentarras Distillery, Langholm, North Britain, distiller. Improvements in distillation, and apparatus used in the process. Dated July 31, 1877.

2945. R. Pendlebury, of Newton Heath, near Manchester, bleacher. Improvements in apparatus used in bleaching. Dated August 1, 1877.

2952. E. Breffit, of London, and J. Edwards, of Castleford, Yorkshire. Improvements in measuring liquids for bottling. Dated August 1, 1877.

2954. Eliza Ramsden, Leicester, confectioner. Improvements in apparatus for making certain kinds of sweetmeats. Dated August 1, 1877.

2967. J. McBane, of Forest Road, Dalston, London, cellarman. Improvements in securing stoppers in bottles and other similar receptacles. Dated August 2, 1877.

2992. J. Mason, of Eynsham Hall, near Witney, Oxfordshire. Improvements in the production of sulphuric acid. Dated August 6, 1877.

3017. A. G. Southby, of 3 New Inn, Strand, London, civil engineer. Improvements in the mode of and apparatus for making ice, refrigerating, evaporating and desiccating. Dated August 8, 1877.

3019. F. A. Bonnefin, of 2 Liverpool Street, King's Cross, London. Improvements in apparatus for filtering liquids and separating solid matters therefrom. Dated August 8, 1877.

3027. J. Carter and J. E. Carter, both of 13 Clarence Street, Halifax, Yorkshire. New or improved appliances for stoppering bottles, flasks, or jars. Dated August 9, 1877.

Letters Patent have been issued for the following :—

613. W. Betts, of Wharf Road, City Road, London, capsule manufacturer. Improvements in machinery or apparatus for capsuling bottles and other like receptacles. Dated February 14, 1877.

638. J. C. Swan, of 1 Dean Street, Newcastle-upon-Tyne, merchant. An improved method of purifying the drainage from alkali waste. Dated February 16, 1877.

666. D. McFarlane, of Glasgow. Improvements in purifying or treating alcoholic liquids, and in apparatus therefor. Dated February 19, 1877.

674. M. E. Savigny, chemist, and A. C. Collineau, doctor in medicine, both of 1 Boulevard St. Denis, Paris. The manufacture of an improved vegetable colouring substance and the derivatives thereof. Dated February 19, 1877.

679. H. Holt, of Hull, Yorkshire. An improved machine for disintegrating oil and other seeds. Dated February 19, 1877.

721. D. Mason, of Chapel Cambuslang, Lanarkshire. New or improved indicating measuring taps for spirits or other liquors, parts being applicable for other purposes, and cask bung-hole stoppers for use in connection therewith. Dated February 22, 1877.

816. F. Anderson and J. Yair, of Cloak Lane, London, managing directors of Liebig's Liquid Extract of Beef and Tonic Wine Company. An improved tonic preparation of liquid extract of beef or meat. Dated February 28, 1877.

818. J. Hargreaves, of Widnes, Lancashire, chemist. Improvements in the manufacture of sulphates of soda and potassa, and in the apparatus employed therein. Dated February 28, 1877.

820. E. A. Parnell, of Swansea, Glamorganshire. Improvements in the manufacture of metallic zinc and of sulphuric acid. Dated February 28, 1877.

983. F. Hocking, of Liverpool. An improved apparatus for heating water and other liquids; applicable also as a condenser, cooler, or refrigerator. Dated March 12, 1877.

1022. G. Gould, of Linfield, Sussex. An improved liquid composition to be used for embalming, deodorising, and disinfecting purposes. Dated March 14, 1877.

1034. H. Bell, J. Bell, and J. J. Coleman, all of Glasgow. Improvements in refrigerative processes and apparatus for preserving meat or other food or beverages. Dated March 15, 1877.

1235. T. Waller, of Fish Street, Hill, London, engineer. Improved washing and cleansing compound or soap. Dated March 28, 1877.

1300. J. C. Martin, of 5 Upper Hill Street, Richmond, Surrey. Improvements in the manufacture of white lead and apparatus employed therein. Dated April 4, 1877.

1750. T. C. Booth, of Vernon Place, London, civil engineer. Improvements in the manufacture of black stains and varnishes. Dated May 5, 1877.

2052. J. R. Carruthers, of Glasgow. A new or improved furniture polish the same being applicable for protecting the contents of wardrobes, drawers, and other receptacles, as well as carpets, curtains, and other analogous fittings, from injury by insects. Dated May 26, 1877.

2088. F. Foster, of 23 Forston Street, Shepherdess Walk, Hoxton, London Improvements in capsules, or stoppers, for closing bottles Dated May 29, 1877.

2251. S. Pitt, of Sutton, Surrey. Improvements in the utilisation of bisulphide of carbon and glycerine for the production of motive-power, and for other purposes. Dated June 9, 1877.

2375. J. Taylor, surgeon, of 51 Hope Street, Liverpool. An improved method for the preservation in its natural state of fresh animal food, such as beef, mutton, pork, and fish, and to prevent decay in hides and salted meats. Dated June 19, 1877.

2481. W. Jones and J. Walsh, both of Middlesborough, Yorkshire, chemical manufacturers. Improvements in and relating to apparatus for the manufacture of sulphates of soda and potash, parts of which invention are applicable to other chemical apparatus. Dated June 27, 1877.

Specifications published during the month :—

Postage 1*d*. each extra.

1876.

4926. A. Steenberg. Distilling apparatus. 6*d*.
4939. A. L. Normandy. Distilling apparatus. 6*d*.
5008. T. L. Parker. Packing and storing perfumes, &c. 2*d*.

1877.

65. M. T. Eastwood. Table or bed for infants. 2*d*.
69. W. E. Gedge. Pads for trusses, &c. 4*d*.
92. P. Piccard. Evaporating saline solutions. 6*d*.
102. P. & F. M. Spence. Manufacture of alum, &c. 2*d*.
152. C. Morfit. Manufacture of fruit bread and farina. 4*d*.
164. W. Netherwood and B. Shaw. Stoppers for bottles. 6*d*.
174. E. C. Prentice. Manufacture of explosives. 2*d*.
237. F. N. Thurel. Apparatus for protecting the eyes. 4*d*.
263. J. Houzeau, E. Devedeix, and J. Holden. Purifying sewage, &c. 4*d*.
272. R. W. Wallace and C. F. Claus. Purification of gas and utilisation of bye-products, &c. 4*d*.
297. S. Williams. Pigments. 2*d*.
351. C. W. Harrison. Impregnating atmospheric air with inflammable vapours. 2*d*.
426. W. Cormack. Utilising refuse and liquors. 2*d*.
444. W. Weldon. Manufacture of sulphide of sodium, &c. 4*d*.
445. W. Weldon. Lining furnaces, &c., and treating sulphide of sodium, &c. 4*d*.
466. J. L. Macmilian. Ointment or cosmetics. 2*d*.
482. R. Main. Utilising residuary oxides of iron. 4*d*.
1374. F. Lewurt and A. Guilleinare. Manufacture and application of chlorophyll. 4*d*.
2212. J. Ganter. Mattress for children and invalids. 4*d*.

Obituary.

Clark.—July 24, 1877, Mr. William Clark, pharmaceutical chemist, Landport. Aged 69 years. Mr. Clark had been a member of the Pharmaceutical Society since 1870.

Colby.—August 18, 1877, Mr. John Colby, pharmaceutical chemist, Western Road, Brighton. Aged 35 years. Mr. Colby had been a member of the Pharmaceutical Society since 1865.

Foy.—August 20, 1877, Mr. Edwin Foy, chemist and druggist, York Town, Farnborough Station. Aged 40 years.

Hemmings.—July 31, 1877, Mr. William Chenhalls Hemmings, chemist and druggist, Penzance. Aged 62 years.

Hope.—August 13, 1877, Mr. William Hope, chemist and druggist, Uppingham. Aged 77 years.

Hunter.—August 14, 1877, Mr. Henry Hunter, chemist and druggist, Alnwick. Aged 65 years.

Huskisson.—July 24, 1877, at Colonnade House, Upper Holloway, Mr. John Huskisson, of the firm of Huskisson & Sons, Swinton Street, Gray's Inn Road. Aged 88 years.

Lundie.—August 10, 1877, Mr. Thomas Lundie, chemist and druggist, Great Grimsby. Aged 40 years.

Terms.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of The Chemist and Druggist, and all correspondence relating to it must be addressed to the "Publisher of The Chemist and Druggist, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

FOR DISPOSAL.

About 5 cwt. bisulphate of potass; offers requested. 17/73.

Acton's "Treatise on Venereal Disease," with Atlas of coloured plates (cost 31*s*. 6*d*.), only 12*s*. 6*d*. 8/72.

A few cases fresh Hunyadi János, 27*s*. 9*d*. each. Clarkson, Chemist, West Hartlepool.

For sale, new electric galvanic machine, 10*s*., cost 20*s*. Gutmacher, Warstone Lane, Birmingham.

Tincture press, gallon, removable lining, for two ounces silver nitrate. Coombs, Castle Cary, Bath.

Cash offers for Hassall's "Adulterations Detected in Food and Medicine," published price 17*s*. 6*d*. 28/70.

The Chemist and Druggist for 1874, 1875, and 1876; what offers or exchange? Butler, Chemist, Tunbridge Wells.

Crown Perfumery Company's perfumes, pomades, &c., condition equal to new. 32/72.

Southall's cabinet, (25*s*.), price 15*s*. Apply, Thomas Clayton, 10 Vigo Street, London, W.

Small lot of Rew & Dowling's unbreakable combs, with all faults. No reasonable offer refused. 39/72.

Tincture press and root cutter cheap, and nearly new. M. M. 28 John Street, Bedford Row, Holborn.

A ½-gall. square iron tincture press, very strong, price 10*s*. Sheel, Low Fell, Gateshead-on-Tyne.

About 1 ounce genuine ambergris, and 10 ounces quinine (Pelletier's); what offers? cash or exchange. 17/73.

Lot unbound *Chemist and Druggist* and *Pharmaceutical Journal*; open to offers. J. Floyd, Bury St. Edmunds.

Good bell metal mortar and pestle at 10*d*. pound, weight 18½ pounds. H. W., 168 Stretford Road, Manchester.

James Epps & Co.'s 7*l*. 7*s*. case homœopathic medicines, only a few bottles sold, bent glass, cracked, will sell for 4*l*. Maddock, Pulborough, Sussex.

Dale's patent drawing and measuring apparatus for petroleum, quite perfect, cost, with 40 ft. lead pipe, 4*l*. 6*s*., price 3*l*. 10*s*., or good exchange. Maddock, Pulborough, Sussex.

A complete set of drawers and shelving, in pitch pine, fitted with glass labels and minor pilasters, with or without bottles and jars. Turner, 110 City Road, Manchester.

Coffey's Esculapian still, with evaporating pan, condensing worm, &c., complete. Address, "Chemicus," Post Office, Gloster Road, Birkdale, Southport, near Liverpool.

First-class drum sieve, in good condition, and large iron mortar and pestle, almost new, sent to any address on receipt of 15*s*. Thomas Robinson, Batley, Yorkshire.

A bargain. Glass case, similar to fig. 40 Maw's catalogue. Cash or exchange for saleable patents. Butler, Chemist, Tunbridge Wells.

Three pear-shaped carboys, 20 inches to top of stopper, with wood stands, painted marble, 5*s*. each. Stanway, Chemist, Kington, Herefordshire.

Student's herbarium of the officinal and other leading indigenous plants (120), mounted and named, 10*s.* 6*d.* Tully, Chemist, Tunbridge Wells.

Lime Juice Cordial.—Four dozen quart bottles will be sold in separate dozen or otherwise, cheap; offers wanted. H. Bennett, 187 Newington Butts, S.E.

A soda-water machine, complete (Barnett's), in working order, with steam engine, bottles, &c. E. Watson, Chemist, Beccles.

Halse's galvanic apparatus, cost 10*l.* 10*s.*, price 5*l.* 5*s.*, not much used, printed instructions for all diseases. G. Brooks, Ladderedge, Endon, Stoke-on-Trent, Staffordshire.

Old books, Salmon's "Supplement to London Dispensatory," 1683, "Pharmacopœia Bateana," 1713; offers. Nicholson, Lindley, Huddersfield.

Offers wanted for Meyer & Meltzer's 20-cell Faradaic battery, continuous and intermittent, nearly new. J. W., 4 High Street, Coventry.

Coventry bicycle, 50-inch driving wheel, all bright, never been used, cost 15*l.*; price 7*l.* 10*s.* R. Halford, Chemist, New John Street, Birmingham.

A quantity of shop rounds (three sizes), ointment and extract jars, in excellent condition, and all gold-labelled, for sale cheap. 19/74.

Pair of handsome specie jars, 22 in. high, with burnished gold coat of arms on each, dome-shaped covers, in black and gold, 3*l.* the pair. Isaac Garrett, 10 Queen's Road, Brighton.

12 pairs forceps, 3 cutters, 3 stump excavators, tooth keys, mouth distender, and several stopping and other dental instruments, price 2*l.*, a bargain. Gardner, Chemist, Canterbury.

Twenty 1 and 4 lb. pale blue jars, slightly defective; with care, usable for many years, 9*d.* each. Two excellent label drawers, nearly new, cost 18*s.*; complete, 10*s.* G. C. Giles, York Road, Leeds.

A Southall's 30*s.* materia medica cabinet for 17*s.* 6*d.* The specimens (about 150), with one or two exceptions, are in good condition. A. P. S., Mr. Taylor, Chemist, Saltburn-by-the-Sea.

Complete set of Lessons for "Minor" (Tully's Postal System), cost 21*s.*; price 8*s.*; herbarium, 5*s.*; "Dispensing Notes," 2*s.* 6*d.*; "Arithmetic and Metric System," 1*s.* 6*d.* A. J. Edwards, Mrs. Burden's, High Street, Hythe.

Thirteen single and three double trusses, in good order, 20*s.*; show case, upright and flat combined, height 37 inches, breadth 46 inches, 3*l.*; *The Chemist and Druggist* for 1873-74-75-76; offers wanted. Lindsey, Rochdale.

To chemists fitting up, a quantity of stoppered shop bottles, all sizes; also pots, pill machines, &c., new and second-hand, large and varied stock. Bowles, Chemist, Bedminster, Bristol.

A Collection of Questions asked at the Minor, 2*s.* 6*d.*; "Notes on Dispensing," with prescriptions given to dispense at the Minor, 2*s.* 6*d.*; herbarium of indigenous plants, invaluable to Minor students, 7*s.* 6*d.*; "Notes on Equation Writing," 9*d.* "Chemist," care of Mr. Fitness, Rotherfield.

One 8*s.* 6*d.*, one 4*s.* 6*d.* Pond's extract, Squire's "Companion to Pharmacopœia," 6th edition, Blaine's "Canine Pathology," "Pharmacopœia of Throat Hospital," Day's "Diseases of Children," Norton's "Infantile Diseases;" offers wanted. Gardner, Chemist, Canterbury.

Handsome mahogany upright 2-door glass case, nearly new, carved scroll top, 4 panes very stout crown glass, seven movable shelves, height 5 feet 6, exclusive, width 4 feet 1, depth inside 4 inches, no back; 3*l.* 10*s.*, lowest price, half carriage paid. R. Lyon, Brook Street, Ipswich.

Hooker's "Student's Flora," Proctor's "Pharmacy," Tuson's "Veterinary Pharmacopœia," Phillips' "London Pharmacopœia," Royle's "Materia Medica," Fownes' "Chemistry," 5 vols. *Pharmaceutical Journal*, bound, new series. What offers? J. Archer, Chemist, Lechlade.

Superb 18-carat gold lever watch, London make, massive cases full jewelled, most reliable timekeeper; price 10*l.* 10*s.* R, Halford, New John Street, Birmingham.

A student's hebarium, comprising officinal and the principal native plants, 140 beautifully mounted specimens, only 10*s.* 6*d.*; the botanical questions and answers for the Minor given in. "Medicus," Newferry, Birkenhead.

Child's 3-flask vulcaniser, complete, 2*l.*; one flask portable vulcaniser, complete, 32*s.*; three dental show cases, bow fronts, 16*s.* each; one gross gilt dental compo springs, 17*s.* 6*d.*; two Stewart's dental reflectors, 27*s.* each. "Dentist," 60 Concord Street, Leeds.

Insect powder, finest quality, 14 lbs., 1*s.*; 28 lbs., 11*d.*; 56 lbs., 10*d.*; bale, 9*d.*; cash with order; two stamps for sample; two 5*s.* Comaline Restorer, five 2*s.* 6*d.*, and six 2*s.* 6*d.* Comaline Gloss, all clean, 16*s.* the lot. Lockwood, Druggist, Sheffield.

Gun, capital central fire, 12-gauge, double-grip, breech-loader, best steel locks, real Damascus barrels, solid walnut stock, close shooter, kills long distance, price 5*l.* 5*s.*, worth double; also cartridge loading, turning over, and recapping machines, 16*s.* 6*d.* Mr. Pearsall, 331 Lodge Road, Birmingham.

Students' text-books—Attfield's "Chemistry," fourth edition, 7*s.*; Royle's "Materia Medica," fifth edition, 6*s.*; Lescher's "Elements of Pharmacy," 3*s.* 6*d.*; Barber's "Companion," sixth edition, 2*s.* 6*d.*; all in excellent condition. P.O.O. payable to William Parker, 29 High Street, Hampstead.

Entire fittings of wholesale drug warehouse, including counters, drawers, shelving, partitioning for offices, desks, store canisters, mortars and pestles, &c.; great bargains in mahogany top counters, from 6 feet to 26 feet long. Lloyd Rayner, 333 Kingsland Road, London, N.

For the benefit of Minor students, thirty autograph prescriptions (catch and difficult) for emulsions, mixtures, pills, &c., as given to dispense at the Minor during the past twelve months, with *modus operandi* for the same; free for 2*s.* From James Saunders, A.P.S., 79 Gaisford Street, N.W.

Three dozen Bright's gastro splenic pills, Cooper's restorative Brown's chlorodyne, Wholpton's pills (purifying), Rooke's pills and elixir, Morgan's hernia pomade, Stedman's powders, Long's maggot and foot rot lotions, Taylor's cow drinks, Simpson's 6*d.* cattle spice, all in good condition; less 20 per cent. off wholesale price, carriage paid on 1*l.* worth assorted. Fowler, Boston, Lincolnshire.

Attfield's "Chemistry," 4th edition; Sutton's "Volumetric Analysis," 2nd edition; Fresenius' "Quantitative Analysis," 6th edition; Fownes' "Chemistry," 10th edition; Royle's "Materia Medica," 5th edition; Squire's "Companion," 8th edition; Lindley's "School Botany," 13th edition; "Free Phosphorus in Medicine," by Ashburton Thompson, all in good condition. What offers? F. D. B. Marchant, Chemist, Blandford.

L. Callaway, Chemist, Ipswich, requiring more room, wishes to clear out his stock of homœopathic medicines, which consists of one of Leath & Ross's six guinea cases, and a supplementary small case for sixpenny articles; also a gilded colossal bust of Hahnemann, very effective. The whole are in condition equal to new, and must be sold in one lot. To clear out half of invoiced price will be taken—about four pounds.

"Pharmaceutical Latin Grammar," 2*s.*; Smith's ditto, with key, 3*s.*; Henry's first ditto, 1*s.*; Barff's "Chemistry," 2*s.* 6*d.*; Orme's "Heat," 2*s.* 6*d.*; "Introductory Science," 9*d.*; 1874 Year-Book, 3*s.* 6*d.*; Bird's "Natural Philosophy," 6*s.*; post free; lot for 21*s.*; Fownes' "Chemistry," 7*s.* 6*d.*; Bentley's "Botany," 6*s.*; Beasley's "Three Thousand Prescriptions," 3*s.*; Hassall's "Food Adulteration," 6*s.*; or the four for 21*s.* "Student," care of Mr. Thresh. Buxton.

Genuine bargains, *Pharmaceutical Journals* from January to September of present year, will send the remainder of the year (post free) as published, price 10*s.*; the *Pharmaceutical Journals* for 1876, price 10*s.*; the *Monthly Magazine of Pharmacy and Chemistry* for 1876, price 2*s.* 6*d.*; *The Chemist and Druggist* for 1871, price 4*s.*; all clean and in good condition. Graham, 48 Hunslet Road, Leeds.

Pharmaceutical specimens, nearly every drug, chemical and preparation; 1 gross 8-oz. wide mouthed box-capped bottles contain the drugs. Tinctures, &c., in 5-oz. stoppered bottles, extracts in 1-oz. covered pots. De Grave's sp. gr. and dispensing scales, cost 2*l.* 2*s.*, together or separate; also chemical apparatus. John Draper, 59 Barnsbury Road, Islington.

Three specie jars, gold scrolls, good condition, 22 inches high, japanned covers; eight black stock bottles, gold-labelled, japanned caps; twelve 6-lb. white ointment jars, odd; three cylindrical carboys, filled, first-rate colours; twelve pint show bottles, filled; ten Briet's pear-shaped syphons. Sale or exchange. T., 5 Whittington Place, Upper Holloway, London.

A 5 ft. 6 in. bent plate-glass counter case, as Maw's 105, 7*l.*; a 7-ft. do., as Maw's No. 16, 12 in. wide, 6*l.* 10*s.*; a 5 ft. 6 in. bent plate-glass counter case, one sheet of plate glass, 5*l.*, a bargain; one 3 ft. 3 in. do. do., 60*s.*; a 4 ft. 9 in., as Maw's 105, 5*l.* 10*s.*; a 5 ft. 2 in., as Maw's 96, 90*s.*; a 5-ft., as Maw's 99, one sheet of plate glass, 6*l.* 10*s.*; a 4 ft. 8, as Maw's No. 16, 65*s.*; a number of smaller sizes, very cheap. E. Natali, 213 Old Street, E.C.

A pair specie jars, Royal Arms, glass, gold covers, in good condition, 30 in. high, also mahogany stands, 2 in. high, 4*l.* 10*s.*; a smaller pair ditto, 75*s.*; a pair ditto nicely labelled, 50*s.*; 2 jars, as fig. A, 23 in. high, 12*s.* each; several as fig. D and A, elaborately labelled, from 6*s.* 6*d.* each; a 24 5-grain pill machine, 12*s.* 6*d.*; a 24 4-grain ditto, 14*s.*; a 12 5-grain, 9*s.*; scales, drawers, mortars, carboys, counters, looking glasses, ointment jars, upright cases for front of desks, 45*s.* Natali, 213 Old Street, E.C.

Desk and case, as Maw's fig. 21, 65*s.*; sponge case, as Maw's 92, 5*l.*; a do. do., very elaborate, 3 ft. 7 long, 6*l.*; a soda-water stand, as Maw's 62, 45*s.*; a tooth-brush case, as Kent's, 27*s.*; a 5-ft. bent plate-glass counter case, in one piece of glass, 18 in. high, 22 in. wide, looking-glass back, fitted inside with glass shelves with polished edges and velvet-lined trays, a very elaborate case, 8*l.* 10*s.*, worth 20*l.*, perfect in every respect. E. Natali, 213 Old Street, E.C.

7 handsome specie jars, with Royal Arms, College of Surgeons, Pharmaceutical Society, &c.; 4 3-gall. jars, with cut stoppers, 2 labelled; 1 upright glass case, opens at side, with sliding shelves, with front glass 9 inches, labelled on the top, height without front glass, 3 ft. 7 in., width, 25 in., deep, 9 in.; counter slanting plate-glass case, lined with silvered glass, 4 ft. long, 2 ft. 8½ in. wide; depth of front, 6 in., back, 9½ in. Want offers; an excellent opportunity for any person wanting the above or part. D. Gibbon, Chemist, Cheltenham.

A 6-ft. plate-glass mahogany wall case, 4 ft. high, shifting shelves, 7*l.*, a bargain; elaborate dispensing screen, as Maw's 164, 6 ft. long, looking-glass back, 7*l.*; a 7-ft. dispensing screen, glass case at each end, looking-glass centre, with marble slab in front, handsome tablets, &c., on top, looking-glass backs to cases, in first-rate condition in every respect, all plate glass, 9*l.*; a 6-ft. do. do., 8*l.* 10*s.*; 2 upright glass cases to stand on counter, each 3 ft. 6 long, 3*l.* 10*s.* each; an upright glass case to stand on floor, 4 ft. long, 3 ft. high, marble top, 4*l.* 10*s.* E. Natali, 213 Old Street, E.C.

Books—Sutton's "Volumetric Analysis," 12*s.*; Balfour's "Manual of Botany," 12*s.* 6*d.*; Fresenius's "Qualitative Analysis," 12*s.*; Hoffman's "Chemistry," 4*s.* 6*d.*; Wilson's ditto, 3*s.* 6*d.*; Macadam's "Practical," 2*s.* 6*d.*; Roscoe's "Chemistry," 4*s.* 6*d.*; Hogg "On the Microscope," 6*s.*; Milne's "Materia Medica," 8*s.* 6*d.*; Turrell's "Leçons Français," 5*s.*; "Year-Book of Pharmacy," 1872–76, 7*s.* 6*d.* per vol.; *Science Gossip*, 1871, 1872, bound in half calf (cost 4*d.* monthly); "Elements of Pharmacy," 7*s.* 6*d.*; Stockhart's "Experimental Chemistry," 5*s.*; *Science Gossip*, 1873, bound in half cloth; ditto, 1875 and 1876, in loose numbers; *English Mechanic*, 1875, 2*d.* weekly; *Pharmaceutical Journal*, Vols. I. and II., third series, half-calf; Blackie's "Popular Encyclopædia" (just published), handsomely bound in gilt cloth, 14 half vols., 11*s.* per half vol. Apply, "Alpha" care of Field, Chemist, 39 South Clerk Street, Edinburgh.

Two ft. 8½ long, 5 ft. 4 long, 5 ft. 5 long, 6 ft. long, 10 ft. 8 long, 12 ft. long nests mahogany-fronted gold-labelled shop drawers; one 5 ft. 4 long nest 72 mahogany stained gold-labelled shop drawers, 4 ft. high; 4 nests counter drawers, with label drawers, &c.; one 7 ft. 3 long, one 10 ft. long, one 12 ft. long, one 16 ft. long handsome mahogany nests gold-labelled shop drawers, with lockers, shelving, and cornice above, forming complete fittings, similar to 194, 196, 197 Maw's; one 6 ft. long, one 6 ft. 6 long handsome mahogany wall cases, with cupboards under, as 199 Maw's; one 8 feet long, one 9 ft. long handsome mahogany wall cases, with cupboards under; 4 ft. 3 long, 4 ft. 3 high mahogany-grained wall case, with two glass doors and shelves enclosed, 40*s.*; 3 ft. 2 long, 2 ft. 9 high mahogany wall cases, with movable shelves, and two glass doors to open, 45*s.*, suitable for patents, &c.; 4 ft. long Maw's fig. 40 upright counter case; 2½ ft. long upright case and desk, as 39 Maw's; 2 ft. 2 long mahogany case for front of desk; 3½ feet long upright counter case, 45*s.*; superior mahogany counter case, as Treble's 107, 4 ft. long; handsome mahogany dispensing screen, 5 ft. 7 long, 2 ft. 3 high, with mirror in centre, and a case at each end, with mirror backs and carving on top, with shelves fitted at back for dispensing bottles, 7*l.* 10*s.*; 6½ ft. long handsome dispensing screen, 2 ft. 6 high, as Maw's 164; soda-water stands, Maw's 62; six 4-gall., five 3-gall., six 2-gall., two 10-gall., one 14-gall. pear-shaped carboys; sixty 1-gall. upright black-glass stock bottles, with shield gold labels and gilt tops; 800 gold-labelled shop bottles, all sizes; 600 gold-labelled shop jars, all colours and sizes; 7 mahogany shop chairs; 1-gall. graduated glass percolator; 2 tincture presses; two 2-doz. 5-gr. pill machines; one pastile machine; twelve massive marble mortars, all sizes up to 24 inches in diameter; quantity handsome show jars, with gilt covers, as fig. D Maw's; jujube jars, as fig. 2 Maw's; 28 handsome labelled specie jars, all sizes, great bargains. Lloyd Rayner, 333 Kingsland Road, London, N.

FORMULÆ.

Recipe for excellent lavender water, 1*s.* 6*d.*; twenty well-tried recipes for horse and cattle medicines, 5*s.* "Chemist," care of Mr. Filtness, Rotherfield.

Invaluable recipe for red water in cows, 3*s.* 6*d.*; remarkable discovery, scarlet wash, renders all faded scarlet uniforms bright and clean, 3*s.* Walker, 13 Armfield Row, Dundee.

An eminent V.S. will forward prescriptions for colic draughts and cough powders for horses, 5*s.* each. Apply, R. H. Dyer, Glentworth Street, Limerick, Ireland.

A retired apothecary has just discovered an extraordinary cure for gout in a few hours; full particulars, 10*s.* 6*d.*; entire cost of remedies (pills), 4*d.*; cure guaranteed in two days. "Medicus," Newferry, Birkenhead.

Mechanical Dentistry.—Full instruction in all branches of mechanical dentistry sent to any address for one guinea, or lessons given on moderate terms. "Dentist," 60 Concord Street, Leeds.

WANTED.

Tomes' dental forceps. Forbes, Chemist, Reigate.

Mahogany tooth-brush case, as fig. 52 Maw's. 16/73.

Soda-water machine and shop bottles. "Chemist," 34 High Street, Putney.

A 3-grain pill machine, to cut 24, in good condition. Hands, Fenny Stratford.

A large petroleum cistern, good. Send size and price to E. Taylor, Droitwich.

Two 40-gall. galvanised iron cisterns for benzoline and petroleum. Townley, Chemist, Keswick.

Root-cutter, second-hand; also Hooper's "Medical Dictionary," say price. Wing, Chislehurst.

All necessary apparatus for mechanical dentistry, good condition. "Spes," Goldwin's Library, Rochester.

Case of dental forceps. H. T. Jeffery, 217 High Street, Watford.

A second-hand tincture press, must be in good order, state price and size. 19/69.

Any quantity small Apollinaris bottles, old or new pattern; say number and lowest price. Floyd & Hicks, Bury St. Edmunds.

The fixtures, fittings, and trade utensils of a small chemist's shop, a small quantity of stock not objected to. Forward full particulars and lowest cash price to J. Hall Roberts, Chemists' Manager, 8 Spencer Road, Tottenham, London, N.

ADDRESSES AND INFORMATION WANTED.

Mr. Margetts—tall, sandy whiskers. 30/72.

A firm in Dundee which produces seal oil. 63/131.

Present address of Dr. George Pearson, believed to be seeking to establish himself in practice in London. 39/72.

Dr. Reed—tall, stoops, supposed to be surgeon in militia, wears eye-glass. 30/72.

Mr. James Maycock—tall, black whiskers, slight impediment. 30/72.

THE official returns for August were within 216,222*l.* of those of the same period in 1876, the actual figures being, August, 1876, 17,962,884*l.*; August, 1877, 17,746,662*l.*

Business in the produce markets has been singularly featureless during the past month, and there is little to comment on.

In chemicals soda crystals are dull, and offered at 4*l.* per ton ex ship. Ash is in moderate demand at 1¾ per cent. per cwt. ex ship to $1\frac{13}{16}$ landed. Bicarb. unchanged in price at 10*s.* 9*d.* per cwt. landed, with business done to a limited extent. For caustic there is a fair inquiry, quotations remaining at 12*s.* 9*d.* to 13*s.* per cwt. for cream, and 13*s.* to 13*s.* 3*d.* for white.

Bleaching powder is sold to a moderate extent, quotation still being 6*s.* 3*d.* per cwt. landed.

Cream of tartar is in comparatively limited demand, but still quoted at 100*s.* per cwt.

Tartaric acid is dull at 1*s.* 5¼*d.* for English crystals or powdered, and 1*s.* 4¾*d.* for foreign crystals. Citric has declined, and the quotation is somewhat nominal at 2*s.* 6*d.* per lb. Oxalic is steady at 5*d.* per lb., with a fair business done.

Sulphate of ammonia sold for spot delivery at 21*s.* 6*d.* to 22*s.* per cwt. according to colour.

Sal ammoniac unchanged at 44*s.* and 45*s.* per cwt., with business done to a fair extent.

Carbonate of ammonia is in rather stronger demand at 5½*d.* to 5¾*d.* per lb., according to packages.

Sulphate of copper unaltered in quotation at 21*s.* per cwt. for ordinary first quality, with transactions to a fair extent.

Some good business has been done in chlorate, and the market has improved and closes firmly at 8½*d.* per lb., which is also the price for 1878, transactions for this position being also to a fair extent. Prussiate quiet at 10¾*d.* to 11¼*d.* per lb., and bichromate steady at 4*d.* per lb., less discount, with rather more doing.

Refined saltpetre dull at 25*s.* 6*d.* to 26*s.* 6*d.* per cwt. according to packages.

Iodine is dull, at the price last quoted, and quinine has gradually declined, with a tendency towards still lower quotations.

Quicksilver has gradually declined again, and is now quoted at 7*l.* 15*s.*

Purchases of drugs have not been extensive, and there has been no appearance of speculative buying. The bark sales have gone off flatly, and a slightly lower range of prices has ruled. Cod liver oil has been in very abundant supply, and quotations have been materially lowered. Castor oil keeps firm. Copaiba is still selling at very low rates, and should be worth buying. Opium makes no advance, notwithstanding interested efforts to depreciate the extent of the new crop. Indeed, from pure absence of business, the prices are somewhat weaker than a month ago. Otto of rose has made no further advance, but when any new arrives it is sure to command a fancy price.

Shellac has again declined to the extent of about 4*s.* per cwt. average.

In oils there has been a very firm market for linseed, which now commands over 30*l.* Rapeseed has advanced in a similar manner. Olive oils have also advanced, as we expected, and those who have not yet bought their stocks will probably have to pay a still higher price. Turpentine is also considerably dearer, being now quoted at 27*s.* to 27*s.* 3*d.* Petroleum remains at its former figure of 10½*d.* to 10¾*d.*, at which it is quite firm.

	Stocks		Landed		Delivered	
	1877	1876	1877	1876	1877	1876
Aloes .... cs	1,788	1,798	1,206	2,205	1,782	1,060
,, ... kegs	21	31	—	1	4	1
,, ... gourds	2,773	1,184	2,690	1,338	1,576	1,138
Aniseed, Star ...... cbts	1,321	796	263	1,381	672	826
Arrowroot .... cks	14,939	12,202	13,717	14,388	8,584	8,177
,, ... bxs & tins	7,557	5,270	8,184	8,005	4,811	4,787
Balsam .... cks, &c.	464	381	435	636	327	440
Bark, Medicinal .. cks, &c.	1,060	218	2,572	572	1,662	484
,, ... srns, &c.	9,862	10,778	17,144	24,299	15,958	29,968
,, ... turs tns	4,407	4,134	6,689	6,188	7,038	4,205
Borax .... pkgs	1,126	1,655	459	2,938	684	3,175
Bees' Wax ...... bls & srns	374	422	115	385	155	374
,, ... cks & cs	1,216	911	1,670	1,544	1,424	1,104
,, ... cakes	83	65	138	744	174	1,415
Japan vegetable .. pkgs	8,165	4,885	5,107	4,798	4,473	6,206
Camphor .... pkgs	6,873	2,993	5,194	2,373	4,728	6,650
Cardamoms .... chts	751	978	447	1,298	527	885
Cocculus Indicus bgs, &c.	2,519	2,110	457	508	327	596
Colombo root .... pkgs	919	919	375	154	172	143
Cream of Tartar ...... cks	110	48	205	194	188	212
Cubebs .... bgs	264	468	30	216	46	133
Dragonsblood .... chts	109	60	144	113	95	90
Galls, E.I. ...... cks & cs	5,322	1,334	7,188	4,298	3,347	3,767
Mediterranean ...... sks	738	2,074	1,087	1,359	806	759
Gum—						
Ammoniac .... pkgs	523	523	184	33	149	122
Animi & Copal .... ,,	8,054	4,941	8,456	2,362	5,223	5,845
Arabic, Barbary .... ,,	715	424	1,513	1,040	1,804	1,505
Turkey .... ,,	387	829	946	1,557	841	1,628
E.I. .... ,,	1,798	1,458	2,167	2,080	1,985	1,830
Asafœtida .... ,,	461	477	467	102	358	234
Benjamin .... ,,	1,117	792	1,450	1,432	930	1,096
Damar .... ,,	746	546	763	2,590	2,171	2,663
Galbanum .... ,,	37	43	15	16	10	2
Gamboge .... ,,	172	148	200	195	237	204
Guaiacum .... ,,	29	68	131	111	111	73
Kino .... ,,	16	12	5	13	7	16
Kowrie .... tns	1,164	885	1,396	1,133	1,041	1,201
Mastic .... pkgs	112	86	24	19	22	97
Myrrh, E.I. .... ,,	319	385	375	408	311	259
Olibanum .... ,,	4,539	2,867	7,916	6,257	4,826	5,471
Sandarac .... ,,	337	511	970	1,037	1,149	1,086
Senegal .... tns	13	43	2	3	7	1
Tragacanth ...... pkgs	318	139	682	189	425	188
Ipecacuanha .... cks & bgs	234	225	340	356	269	360
Jalap .... bls	599	617	262	144	313	231
Nux Vomica .... pkgs	1,735	1,504	1,117	3,668	891	4,443
Oil—						
Castor .... cks	—	50	4	193	4	172
,, ... cs	6,095	3,274	11,792	9,816	10,544	8,174
,, .. dpprs & tins	2,508	4,376	6,852	11,287	6,759	12.057
Palm .... tns	189	669	1,358	1,901	1,676	2,096
Cocoanut .... ,,	3.782	3,544	7,813	6,321	6,870	6,431
Olive .... cks, &c.	2,128	1,298	5,060	2,525	3,396	2,436
Aniseed .... cs	252	253	345	736	312	523
Cassia .... ,,	773	210	553	—	182	116
Opium .... chts, &c.	783	628	—	—	—	—
Plumbago .... tns	3,670	4,035	1,435	1,624	1,564	1,640
Rhubarb .... chts	1,120	686	1,246	1,232	1,074	1,281
Saltpetre, Pt. .... tns	3,919	5,675	5,430	6,769	6,871	7,172
Sarsaparilla .... bls	1,266	850	2,017	1,899	1,666	1,777
Senna .... bls, &c.	2,933	2,240	2,933	1,027	2,531	1,539
Shellac .... cs, &c.	35,763	23,601	30,855	27,661	21,991	22.635
Sticklac .... chts, &c.	3,635	2,001	2,418	2,387	1,915	2,968
Terra Japnca, Gambler tns	1,947	1,545	6,054	5,166	4,969	3,909
Cutch .... ,,	2,787	2,957	1,984	1,941	1,915	1,954
Turmeric .... ,,	853	442	1,416	1,020	1,199	958

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.

	1877. s.	d.		s.	d.	1876. s.	d.		s.	d.
ACIDS—										
Acetic ....per lb.	0	2¾	to	0	0	0	3½	to	0	0
Citric .... „	2	5½	..	2	6	2	9	..	0	0
Hydrochlor......per cwt.	5	0	..	7	0	4	0	..	7	0
Nitric ....per lb.	0	4¾	..	0	0	0	4¾	..	0	0
Oxalic .... „	0	5	..	0	0	0	5	..	0	0
Sulphuric ...... „	0	0¾	..	0	1	0	0¾	..	0	1
Tartaric crystal.. „	1	5	..	1	0	1	5	..	0	0
powdered „	1	5	..	1	0	1	5	..	0	0
ANTIMONY ore ......per ton	240	0	..	300	0	280	0	..	300	0
crude .. per cwt.	37	0	..	0	0	42	0	..	0	0
star...... „	48	0	..	0	0	59	0	..	61	0
ARSENIC, lump...... „	26	0	..	0	0	27	6	..	28	0
powder.... „	8	3	..	0	0	10	6	..	0	0
BRIMSTONE, rough ...per ton	110	0	..	0	0	120	0	..	130	0
roll .. per cwt.	9	6	..	9	9	10	0	..	10	3
flour.... „	12	0	..	13	6	12	6	..	14	0
IODINE, dry ....per oz.	0	9½	..	0	0	0	6	..	0	0
IVORY BLACK, dry .. per cwt.	8	6	..	0	0	8	6	..	0	0
MAGNESIA, calcined..per lb.	1	10	..	0	0	1	8	..	0	0
MERCURY ....per bottle	155	0	..	0	0	160	0	..	0	0
MINIUM, red ...... per cwt.	22	6	..	0	0	23	3	..	0	0
orange .. „	33	0	..	0	0	37	0	..	0	0
PRECIPITATE, red . per lb.	4	0	..	0	0	4	1	..	0	0
white „	3	11	..	0	0	4	0	..	0	0
PRUSSIAN BLUE .. „	0	0	..	0	0	0	0	..	0	0
SALTS—										
Alum ....per ton	140	0	..	145	0	145	0	..	155	0
powder...... „	155	0	..	160	0	160	0	..	165	0
Ammonia:										
Carbonate...... per lb.	0	5½	..	0	5¾	0	5	..	0	5¼
Hydrochlorate, crude, white .... per ton	560	0	..	720	0	560	0	..	700	0
British (*see* Sal Am.)										
Sulphate........ per ton	430	0	..	440	0	375	0	..	390	0
Argol, Cape ......per cwt.	75	0	..	90	0	80	0	..	87	0
Red........ „	67	0	..	72	0	70	0	..	75	0
Oporto, red. „	33	0	..	34	0	33	6	..	34	0
Sicily ...... „	0	0	..	0	0	0	0	..	0	0
Ashes (*see* Potash and Soda)										
Bleaching powd...per cwt.	6	3	..	0	0	6	6	..	0	0
Borax, crude...... „	27	0	..	38	0	30	0	..	40	0
British refnd. „	40	0	..	0	0	43	0	..	0	0
Calomel ....per lb.	3	7	..	0	0	3	8	..	0	0
Copper:										
Sulphate ....per cwt.	21	6	..	22	0	22	0	..	0	0
Copperas, green..per ton	55	0	..	0	0	55	0	..	60	0
Corrosive Sublimate p. lb.	3	0	..	0	0	3	1	..	0	0
Cr. Tartar, French, p. cwt.	100	0	..	101	0	106	0	..	107	0
brown „	90	0	..	0	0	80	0	..	85	0
Epsom Salts ....per cwt.	4	3	..	5	3	5	3	..	7	0
Glauber Salts .... „	3	6	..	4	6	4	6	..	5	6
Lime:										
Acetate, white, per cwt.	11	0	..	20	0	11	0	..	20	0
Magnesia: Carbonate „	47	6	..	0	0	45	0	..	0	0
Potash:										
Bichromate ....per lb.	0	4	..	0	0	0	4½	..	0	0
Carbonate:										
Potashes, Canada, 1st sort ......per cwt.	24	0	..	0	0	24	6	..	0	0
Pearlashes, Canada, 1st sort ......per cwt.	33	0	..	0	0	28	6	..	0	0
Chlorate ......per lb.	0	8¼	..	0	8½	0	8½	..	0	0
Prussiate .... „	0	10¾	..	0	11½	0	11	..	0	0
red .... „	0	0	..	0	0	0	0	..	0	0
Tartrate (*see* Argol and Cream of Tartar)										
Potassium:										
Chloride......per cwt.	0	0	..	0	0	7	0	..	0	0
Iodide ....per lb.	12	0	..	12	6	7	6	..	0	0
Quinine:										
Sulphate, British, in bottles ......per oz.	12	0	..	12	6	8	6	..	0	0
Sulphate, French „	12	0	..	0	0	8	3	..	0	0
Sal Acetos ......per lb.	0	7	..	0	7¼	0	7½	..	0	0
Sal Ammoniac, Brit. cwt.	44	0	..	45	0	44	0	..	45	0
Saltpetre:										
Bengal, 6 per cent. or under ......per cwt.	21	0	..	22	0	17	9	..	18	3
Bengal, over 6 per cent. per cwt.	20	0	..	20	9	17	0	..	17	6
British. refined „	25	0	..	26	0	21	6	..	22	9
Soda: Bicarbonate, p. cwt.	10	9	..	11	0	10	9	..	11	0
Carbonate:										
Soda Ash ..per deg.	0	1 13/16	..	0	0	0	1¾	..	0	0
Soda Crystals per ton	80	0	..	0	0	77	6	..	0	0
Hyposulphite, per cwt.	0	0	..	0	0	0	0	..	0	0
Nitrate ...... „	14	6	..	15	0	11	3	..	11	6
SUGAR OF LEAD, White cwt.	37	0	..	0	0	38	0	..	0	0
Brown, cwt.	26	6	..	0	0	27	0	..	0	0
SULPHUR (*see* Brimstone)										
VERDIGRIS .... per lb.	1	1	to	1	5	1	1	to	1	5
VERMILION, English „	3	3	..	0	0	3	2	..	0	0
China „	2	9	..	0	0	0	0	..	0	0

DRUGS.

	1877. s.	d.		s.	d.	1876. s.	d.		s.	d.
ALOES, Hepatic ....per cwt.	70	0	..	180	0	60	0	..	160	0
Socotrine .. „	85	0	..	220	0	65	0	..	180	0
Cape, good.. „	56	0	..	57	0	44	0	..	40	0
Inferior .... „	44	0	..	55	0	38	0	..	43	0
Barbadoes .. „	50	0	..	210	0	45	0	..	180	0
AMBERGRIS, grey........oz.	74	6	..	83	0	58	0	..	65	0
BALSAM—										
Canada............per lb.	1	1	..	0	0	1	2	..	0	0
Capivi .... „	1	5	..	1	6	1	9	..	1	10
Peru .... „	5	0	..	0	0	5	0	..	5	0
Tolu.............. „	6	0	..	6	6	0	0	..	0	0
BARKS—										
Canella alba......per cwt.	21	0	..	28	6	26	0	..	27	0
Cascarilla .... „	15	0	..	20	0	16	6	..	20	0
Peru, crown & grey per lb.	1	6	..	2	9	1	2	..	2	9
Calisaya, flat „	1	3	..	5	0	2	0	..	4	6
„ quill „	2	0	..	8	0	2	0	..	4	6
Carthagena „	0	9	..	5	11	1	5	..	2	2
Columbian .. „	1	9	..	6	0	1	0	..	3	4
E. I. .... „	1	4	..	6	6	2	0	..	6	0
Pitayo ...... „	0	6	..	1	6	0	7	..	1	9
Red .... „	2	3	..	5	0	1	9	..	4	6
Buchu Leaves........ „	0	2½	..	1	6	0	1	..	1	1
CAMPHOR, China ..per cwt.	92	6	..	95	0	62	6	..	63	6
Japan .. „	97	6	..	100	0	65	0	..	68	0
Refin. Eng. per lb.	1	3	..	0	0	1	0	..	0	0
CANTHARIDES........ „	1	11	..	5	3	3	0	..	3	9
CHAMOMILE FLOWERS p. cwt.	50	0	..	200	0	40	0	..	57	0
CASTOREUM ....per lb.	9	0	..	30	0	7	0	..	25	0
DRAGON'S BLOOD, lp. p. cwt.	95	0	..	260	0	100	0	..	260	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices).										
Anise, China Star per cwt.	92	0	..	100	0	85	0	..	102	0
Spanish, &c. „	30	0	..	35	0	26	0	..	40	0
Beans, Tonquin....per lb.	1	9	..	2	7	1	7	..	2	6
Cardamoms, Malabar good .... „	5	0	..	5	11	3	6	..	4	0
inferior.... „	1	6	..	4	5	0	10	..	3	4
Aleppy .... „	8	2	..	4	4	2	0	..	3	9
Madras.... „	2	2	..	3	10	2	0	..	3	3
Ceylon .... „	3	6	..	5	0	4	0	..	5	0
Cassia Fistula....per cwt.	10	0	..	32	0	8	0	..	14	0
Castor Seeds .... „	0	0	..	0	0	5	0	..	10	6
Cocculus Indicus „	8	3	..	11	0	9	0	..	11	0
Colocynth, apple ..per lb.	0	0	..	0	0	0	6	..	0	11
Croton Seeds ....per cwt.	30	0	..	0	0	32	6	..	0	0
Cubebs.......... „	27	0	..	27	6	30	0	..	0	0
Cummin .... „	10	0	..	20	0	16	0	..	20	0
Dividivi .... „	12	6	..	17	6	10	0	..	15	0
Fenugreek ...... „	8	0	..	11	0	15	0	..	22	0
Guinea Grains .. „	0	0	..	0	0	21	6	..	0	0
Juniper Berries „	8	0	..	10	0	8	0	..	10	0
Nux Vomica.. .. „	12	0	..	14	6	8	6	..	13	0
Tamarinds, East India „	11	0	..	18	0	13	0	..	16	0
West India „	20	0	..	25	0	11	0	..	16	0
Vanilla, large .... per lb.	20	0	..	28	0	28	0	..	43	0
inferior „	12	0	..	18	0	13	0	..	19	0
GINGER, Preserved, per lb.	0	4½	..	0	7	0	5¼	..	0	8
HONEY, Chili .... per cwt.	32	0	..	41	0	40	0	..	47	6
Jamaica „	36	0	..	46	0	35	0	..	47	0
Australian „	0	0	..	0	0	0	0	..	0	0
IPECACUANHA .... per lb.	5	0	..	5	8	4	4	..	4	8
ISINGLASS, Brazil.. „	2	10	..	5	0	2	2	..	4	8
Tongue sort „	3	6	..	5	4	2	6	..	5	0
East India „	2	2	..	5	0	0	9	..	4	9
West India „	4	0	..	4	10	4	0	..	4	11
Russ. long staple	8	0	..	15	0	9	0	..	12	6
„ inferior	0	0	..	0	0	0	0	..	0	0
„ Simovia	2	2	..	3	3	2	0	..	3	3
JALAP, good...... „	0	8	..	0	10	0	7	..	0	9
infer. & stems „	0	7	..	0	7½	0	6	..	0	6½
LEMON JUICE .... per degree	0	1¼	..	0	1½	0	1⅓	..	0	1½
LIME JUICE........per gall.	0	0	..	0	0	1	3	..	1	8
LIQUORICE, Spanish per cwt.	34	0	..	39	0	0	0	..	0	0
Liquorice Root „	0	0	..	0	0	12	0	..	30	0
MANNA, flaky ......per lb.	0	0	..	0	0	5	6	..	6	0
small ...... „	0	0	..	0	0	1	6	..	1	9
MUSK, Pod..........per oz.	13	6	..	48	6	40	0	..	45	0
Grain........ „	40	0	..	50	0	51	0	..	60	0
OILS (*see also separate list*)										
Almond, expressed per lb.	1	4	..	0	0	1	0	..	0	0
Castor, 1st pale.... „	0	4½	..	0	5	0	4	..	0	4¾
second .... „	0	4¼	..	0	4⅝	0	3¼	..	0	3½
Cod Liver ...... per gall.	3	11	..	6	6	5	6	..	7	6
Croton .... per oz.	0	2½	..	0	0	0	2½	..	0	0
Essential Oils:										
Almond ....per lb.	20	0	..	0	0	20	0	..	0	0
Anise-seed ...... „	6	6	..	6	9	7	0	..	0	0
Bay ....per cwt.	0	0	..	0	0	65	0	..	70	0
Bergamot ...... per lb.	10	0	..	15	0	10	0	..	15	0
Cajeput......per bottle	3	0	..	3	6	2	9	..	3	0
Caraway........per lb.	9	0	..	9	3	9	0	..	9	3
Cassia .... „	3	0	..	0	0	4	2	..	0	0
Cinnamon ......per oz.	2	0	..	6	0	2	6	..	6	6
Cinnamon-leaf .. „	0	2½	..	0	3	0	2½	..	0	3
Citronelle ...... „	0	1¾	..	0	2	0	1¾	..	0	2
Clove .... „	8	6	..	0	0	8	9	..	0	0
Juniper .... „	0	0	..	0	0	0	0	..	0	0
Lavender ......per lb.	1	8	..	7		1	8	..	7	0
Lemon.......... „	7	0	..	9	0	7	0	..	9	6
Lemongrass ....per oz.	0	2½	..	0	0	0	2½	..	0	0

	1877.			1876.		
Essential Oils, *continued*:—	s. d.		s. d.	s. d.		s. d.
Neroli ....per oz.	2 0	to	6 6	3 0	to	6 6
Nutmeg .... ,,	0 5	..	0 0	0 7	..	0 7½
Orange..........per lb.	6 0	..	9 0	6 0	..	9 0
Otto of Roses....per oz.	16 0	..	22 0	13 0	..	25 0
Patchouli ...... ,,	1 9	..	3 0	2 0	..	3 6
Peppermint:						
American ....per lb.	13 0	..	14 3	16 0	..	0 0
English ...... ,,	84 0	..	35 0	82 0	..	34 0
Rosemary ...... ,,	2 0	..	2 6	2 0	..	2 6
Sassafras ...... ,,	2 8	..	2 6	2 3	..	2 6
Spearmint ...... ,,	12 0	..	15 0	14 0	..	16 0
Thyme.......... ,,	0 0	..	0 0	0 0	..	0 0
Mace, expressed ..per oz.	0 6	..	0 10	0 6	..	0 10
OPIUM, Turkey ......per lb.	21 0	..	22 6	19 6	..	21 6
inferior ...... ,,	10 0	..	18 0	9 0	..	18 0
QUASSIA (bitter wood) per ton	100 0	..	130 0	100 0	..	140 0
RHUBARB, China, good and fine ....per lb.	3 0	..	3 6	3 9	..	4 6
Mid. to ord....... ,,	0 10	..	2 6	0 8	..	2 10
Dutch Trimmed.. ,,	0 0	..	0 0	8 0	..	8 6
ROOTS—Calumba..per cwt.	28 0	..	34 0	25 0	..	28 0
China .... ,,	30 0	..	32 0	19 0	..	24 0
Chiretta ....per lb.	0 2½	..	0 3	0 3½	..	0 4
Galangal ....per cwt.	24 0	..	26 0	19 0	..	22 0
Gentian .... ,,	22 0	..	24 0	23 0	..	24 0
Hellebore .... ,,	0 0	..	0 0	0 0	..	0 0
Orris .... ,,	26 0	..	75 0	26 0	..	75 0
Pellitory.......... ,,	70 0	..	76 0	70 0	..	76 0
Pink..............per lb.	0 0	..	0 0	0 0	..	0 0
Rhatany.......... ,,	0 3	..	1 0	0 4	..	0 8
Seneka............ ,,	3 6	..	4 0	3 6	..	0 0
Snake .... ,,	0 6	..	0 6½	0 6	..	0 7
SAFFRON, Spanish .. ,,	33 0	..	37 0	24 0	..	30 0
SALEP .... per cwt.	0 0	..	0 0	0 0	..	0 0
SARSAPARILLA, Lima per lb.	0 5	..	0 7	0 6	..	0 8
Guayaquil .... ,,	1 10	..	2 2	1 9	..	1 11
Honduras .... ,,	0 11	..	1 4	1 3	..	1 6
Jamaica .... ,,	1 3	..	2 9	2 8	..	3 0
SASSAFRAS ....per cwt.	9 0	..	11 0	0 0	..	0 0
SCAMMONY, Virgin ..per lb.	24 0	..	30 0	24 0	..	30 0
second & ordinary ,,	6 0	..	22 0	6 0	..	22 0
SENNA, Bombay .... ,,	0 1	..	1 6	0 1	..	0 4
Tinnivelly .... ,,	0 1¼	..	1 0	0 2	..	1 3
Alexandria........ ,,	0 5	..	2 0	0 5	..	2 8
SPERMACETI, refined ,,	1 3	..	1 4	1 4	..	0 0
American .... ,,	1 0	..	1 1	1 0	..	1 1
SQUILLS............ ,,	0 1½	..	0 3½	0 3	..	0 4

GUMS.

	1877.			1876.		
	£ s.		£ s.	£ s.		£ s.
AMMONIACI drop .. per cwt.	2 2	..	2 6	1 15	..	2 15
lump.. ,,	0 17/6	..	1 14	1 0	..	1 10
ANIMI, fine washed ,,	11 0	..	12 15	11 0	..	12 10
bold scraped ,,	9 15	..	10 15	9 10	..	10 15
sorts ...... ,,	6 15	..	9 10	6 10	..	9 5
dark ...... ,,	4 0	..	0 10	4 0	..	0 0
ARABIC, E.I., fine pale picked .. ,,	3 0	..	8 17	3 0	..	4 0
srts.,md.to fin. ,,	2 5	..	2 14	2 10	..	2 18
garblings .. ,,	1 6	..	2 0	1 2	..	2 4
TURKEY,pick.gd.to fin. ,,	6 0	..	9 10	6 0	..	10 0
second & inf. ,,	3 0	..	5 15	2 10	..	5 10
in sorts .. ,,	2 10	..	3 10	1 15	..	2 5
Gedda .... ,,	1 16	..	3 8	1 3	..	1 6
BARBARY, white .. ,,	0 0	..	0 0	2 4	..	2 16
brown .. ,,	1 15	..	1 19	1 10	..	1 14
AUSTRALIAN...... ,,	1 17	..	2 15	1 15	..	2 5
ASSAFŒTIDA,cm.to fin ,,	0 10	..	4 0	0 15	..	1 10
BENJAMIN,1st & 2nd ,,	0 0	..	0 0	10 0	..	36 0
Sumatra 1st & 2nd ,,	7 10	..	11 5	6 10	..	15 0
3rd	3 0	..	5 0	3 10	..	5 0
COPAL, Angola red ,,	6 0	..	6 15	6 0	..	6 15
Benguela ,,	4 0	..	5 0	4 0	..	5 0
	s. d.		s. d.	s. d.		s. d.
Sierra Leone, per lb.	0 6	..	0 10	0 7½	..	0 11
Manilla....per cwt.	20 0	..	28 0	15 0	..	27 0
DAMMAR, pale .... ,,	66 0	..	75 0	60 0	..	63 0
Singapore .... ,,	65 6	..	74 0	60 0	..	63 0
EUPHORBIUM .... ,,	9 0	..	15 0	12 0	..	20 0
GALBANUM .... per lb.	0 5	..	1 3	0 6	..	1 6
GAMBOGE,pckd.pipe per cwt.	210 0	..	250 0	200 0	..	260 0
GUAIACUM ....per lb.	1 3	..	2 6	1 0	..	3 2
KINO..............per cwt.	40 0	..	50 0	40 0	..	50 0
KOWRIE, rough .. ,,	25 0	..	40 0	30 0	..	49 0
scraped sorts ,,	42 0	..	55 0	50 0	..	60 0
MASTIC, picked ....per lb.	4 0	..	5 0	4 0	..	5 0
MYRRH, gd. & fine per cwt.	150 0	..	240 0	170 0	..	0 0
ord. to fair.... ,,	70 0	..	130 0	100 0	..	150 0
OLIBANUM, p. drop ,,	47 0	..	52 0	51 0	..	54 0
amber & ylw. ,,	42 0	..	46 0	45 0	..	50 0
garblings.... ,,	10 0	..	25 0	15 0	..	26 0
SENEGAL .... ,,	65 0	..	0 0	50 0	..	60 0
SANDARAC........ ,,	80 0	..	100 0	85 0	..	100 0
SHELLAC, Orange.. ,,	85 0	..	96 0	88 0	..	140 0
Liver .. ,,	81 0	..	89 0	90 0	..	110 0
THUS .... ,,	20 0	..	21 6	20 0	..	22 0
TRAGACANTH, leaf ,,	240 0	..	400 0	240 0	..	400 0
in sorts ,,	25 0	..	175 0	25 0	..	175 0

OILS.

	1877.			1876.		
	£ s.		£ s.	£ s.		£ s.
SEAL, pale ....per tun	33 0	..	0 0	32 10	..	33 0
yellow to tinged ,,	31 0	..	32 0	30 0	..	32 0
brown ...... ,,	29 0	..	30 0	29 10	..	0 0
SPERM............ ,,	80 0	..	0 0	83 0	..	84 0
BODY ...... ,,	0 0	..	0 0	0 0	..	0 0
COD .... ,,	35 10	..	0 0	41 0	..	0 0
Oils, *continued*:—	£ s.		£ s.	£ s.		£ s.
WHALE,SouthSea,pale,per tun	35 10	to	36 0	34 10	to	35 0
yellow ,,	33 0	..	35 0	32 0	..	34 0
brown ,,	31 0	..	0 0	28 0	..	30 0
East India, Fish ,,	25 10	..	26 0	20 0	..	0 0
OLIVE, Gallipoli....per ton	0 0	..	0 0	46 10	..	0 0
Gioja........ ,,	50 0	..	0 0	44 10	..	0 0
Levant .... ,,	47 10	..	48 0	0 0	..	0 0
Mogador .... ,,	46 10	..	0 0	0 0	..	0 0
Spanish .... ,,	49 0	..	50 0	0 0	..	0 0
Sicily ...... ,,	49 0	..	50 0	0 0	..	0 0
COCOANUT, Cochin.. ,,	43 10	..	44 0	39 0	..	40 0
Ceylon ,,	38 10	..	0 0	37 0	..	0 0
Mauritius ,,	38 15	..	0 0	30 0	..	36 10
GROUND NUT AND GINGELLY:						
Bombay	0 0	..	0 0	0 0	..	0 0
Madras	45 0	..	0 0	36 10	..	0 0
PALM, fine................	40 0	..	0 0	36 0	..	36 5
LINSEED	30 10	..	30 15	24 0	..	24 5
RAPESEED, English, pale ..	41 0	..	0 0	38 0	..	0 0
brown	39 0	..	0 0	36 0	..	0 0
Foreign, pale ..	0 0	..	0 0	38 0	..	0 0
brown	0 0	..	0 0	0 0	..	0 0
COTTONSEED	34 10	..	35 10	30 5	..	0 0
LARD	51 0	..	0 0	55 0	..	0 0
TALLOW	30 0	..	54 0	28 0	..	46 0
	s. d.		s. d.	s. d.		s. d.
TURPENTINE, American,cks.	27 0	..	27 3	23 6	..	0 0
French ,,	0 0	..	0 0	0 0	..	0 0
PETROLEUM, Crude	0 0	..	0 0	0 0	..	0 0
refined, per gall.	0 10½	..	0 10⅝	1 5½	..	0 0
Spirit ,,	0 8½	..	0 0	1 2	..	0 0

SEEDS.

	1877.			1876.		
CANARY............per qr.	50 0	..	57 6	50 0	..	75 0
CARAWAY, English per cwt.	50 0	..	56 0	0 0	..	0 0
German, &c....	48 0	..	49 0	0 0	..	0 0
CORIANDER	22 0	..	26 0	15 0	..	28 0
HEMP..............per qr.	0 0	..	0 0	40 0	..	45 0
LINSEED, English ,,	66 0	..	70 0	0 0	..	0 0
Black Sea & Azof	57 0	..	0 0	49 0	..	50 0
Calcutta ,,	55 0	..	0 0	49 0	..	0 0
Bombay ,,	58 0	..	0 0	52 0	..	0 0
St. Petrsbrg. ,,	53 0	..	54 0	0 0	..	0 0
Mustard, brown..per bshl.	0 0	..	0 0	12 0	..	15 0
white.. ,,	16 0	..	18 0	13 0	..	16 0
POPPY, East India, per qr.	57 6	..	58 0	47 0	..	47 6

SPICES.

	1877.			1876.		
CASSIA LIGNEA ..per cwt.	47 0	..	60 0	47 0	..	66 0
Vera .... ,,	22 0	..	45 0	22 0	..	44 0
Buds .... ,,	68 0	..	70 0	75 0	..	78 0
CINNAMON, Ceylon:						
1st quality ......per lb.	2 1	..	8 8	2 2	..	4 2
2nd do. .... ,,	1 10	..	2 10	1 9	..	3 9
3rd do. .... ,,	1 9	..	2 5	1 6	..	2 9
Tellicherry ...... ,,	2 6	..	2 10	2 9	..	3 0
CLOVES, Penang .... ,,	2 0	..	0 0	2 0	..	2 2
Amboyna .... ,,	1 4	..	1 6	1 5	..	1 6
Zanzibar.......... ,,	1 1	..	1 2	1 2	..	1 3
GINGER, Jam., fine per cwt.	91 0	..	202 6	93 0	..	202 6
Ord. to good .... ,,	48 0	..	90 0	51 0	..	92 0
African .... ,,	28 0	..	28 6	29 0	..	30 0
Bengal............ ,,	20 6	..	21 0	27 0	..	0 0
Malabar .... ,,	28 0	..	30 6	30 0	..	0 0
Cochin .... ,,	50 0	..	115 0	52 0	..	115 0
PEPPER, Blk, Malabar, per lb.	0 4½	..	0 5	0 4½	..	0 5½
Singapore .... ,,	0 3¾	..	0 3⅞	0 3¾	..	0 3⅞
White Tellicherry ,,	0 10	..	1 4	0 10	..	1 4
Cayenne.......... ,,	1 6	..	2 6	2 4	..	2 10
MACE, 1st quality .. ,,	2 0	..	3 0	1 11	..	2 5
2nd and inferior .. ,,	0 11	..	1 11	0 11	..	1 10
NUTMEGS, 78 to 60 to lb. ,,	3 9	..	4 6	3 4	..	4 3
90 to 80 ,, ,,	3 0	..	3 6	2 11	..	3 4
132 to 95 ,, ,,	2 0	..	3 0	2 4	..	2 11
PIMENTA..................	0 4	..	0 4¼	0 3½	..	0 3¾

VARIOUS PRODUCTS.

	1877.			1876.		
COCHINEAL—						
Honduras, black ..per lb.	2 0	..	2 7	1 10	..	2 5
,, silver .. ,,	1 11	..	2 4	1 10	..	2 0
,, pasty .. ,,	1 10	..	0 0	1 10	..	0 0
Mexican, black.... ,,	1 10	..	1 11	1 9	..	1 10
,, silver.... ,,	1 9	..	1 10	1 8	..	1 9
Teneriffe, black .. ,,	1 11	..	3 0	1 10	..	2 9
,, silver .. ,,	2 0	..	2 3	1 9	..	1 11
SOAP, Castile......per cwt.	26 0	..	33 0	33 0	..	34 0
SOY, China ...... ,, gall.	1 3	..	0 0	1 6	..	1 8
SPONGE,Turk.fin.pkd pr lb.	0 0	..	0 0	12 0	..	16 0
Fair to good ,,	0 0	..	0 0	4 0	..	11 0
Ordinary .. ,,	0 0	..	0 0	1 0	..	3 0
Bahama.... ,,	0 0	..	0 0	0 6	..	3 0
TERRA JAPONICA—						
Gambier ......per cwt.	20 6	..	20 9	19 0	..	0 0
Free cubes .... ,,	26 0	..	28 0	26 6	..	29 0
Cutch .... ,,	22 6	..	24 6	23 6	..	24 6
WOOD, DYE, Bar ..per ton	£3 2/6	..	£3 5	£3 0	..	3 10
Brazil .... ,,	14 0	..	20 0	0 0	..	0 0
Cam.............. ,,	18 0	..	32 0	18 0	..	29 10
Fustic, Cuba ...... ,,	8 0	..	8 10	8 10	..	9 0
Jamaica .... ,,	5 10	..	6 0	5 10	..	6 0
LOGWOOD,Campeachy,,	8 15	..	9 0	9 0	..	10 0
Honduras ...... ,,	6 10	..	6 15	7 0	..	8 0
St. Domingo .... ,,	5 10	..	5 15	5 10	..	6 10
Jamaica .... ,,	5 0	..	5 10	5 5	..	6 0
LIMA, first pile .... ,,	8 15	..	10 10	8 0	..	9 0
RED SANDERS .... ,,	6 0	..	0 0	6 0	..	0 0

NOTES AND QUERIES

Sometimes correspondents send us anonymous queries. These we reply to or neglect, as it suits our convenience. Those who favour us with their name and address may be confident that their communications will, at least, have respectful attention, though we must be allowed to use our discretion about bringing them into print. We cannot reply privately.

A Picturesque Assistant.—A chemist, in a fashionable town on the South Coast, having advertised recently for an assistant, received the following among other applications:—

London, W.C., August 14, 1877.

SIR,—I make application by means of this letter for appointment as assistant. Am a graduate of the College of Physicians and Surgeons located at New York City. My diploma was given me five years ago. One year I kept a drug store and the two following practiced medicine and surgery at my residence, with however only a small practice. Past year and quarter have not practiced; but studied art. Now I must enter business for a support. Am an accurate dispenser as I compounded all my own medicines as a druggist. Am well up in the general routine of practice. Am correct in all my habits temperate honest strictly conscientious. Will furnish unexceptionable references as to character &c. from business men of high standing in United States London &c. My age is between 30 and 31 but am younger looking. Smooth chestnut coloured hair hazle eyes Roman nose height 5 feet 3½ inches weight 118 lbs. rather good looking also small black side whiskers which I forgot to enumerate before. Salary as resident 50*l.* to 60*l.*

Answer soon please if thinking favourably of my terms &c.

Yours truly

Muscarius (Londonderry) asks for a "good non-poisonous fly paper." The following we have seen recommended:—Brush over coarse blotting paper pulv. piper. nigr. mixed with syrup to a thick paste, and dry. To be used in the usual way.

Chemicus (Natal) will find what he wants in our "Exchange Column."

Veterinary Formulæ.—The following set of formulæ have been sent to us by Mr. W. H. Greeves, of Woodend, Victoria, who says that they have had an extended trial for several years. The white oils, he adds, make an excellent stock liniment, and are useful for either man or beast. The last formula, we presume, is also adapted for either genus:—

White Oils.

Eggs	xii.
Soft soap	℥v.
Turpentine	℥xii.
Sol. ammonia fort.	℥vi.
Acid acetic fort.	℥viii.
Camphor	℥v.
Methylated spirit	℥x.
Ol. eucalyptus	℥ii.
Aquæ, ad.	Ov.

Alterative Powders.

Ferri oxidi	℥vi.
Antim. sesquisulph.	℥iii.
Sulph. flor.	℥iv.
Pulv. pot. nit.	℥iv.
Ol. carui, ol. anisi, each	ʒi.

Dose—a tablespoonful.

Cleansing Drench.

Pulv. pot. nit.	℥i.
Sulph. flor.	℥i.
Ferri carb.	℥ss.
Pulv. diapente	℥ii.
Sodæ sulph.	℥iv.
Mag. sulph.	℥iv.

Mix—divide into two doses; administer each dose in a quantity of gruel.

Pulv. Diapente.

Pulv. gentian	℥iv.
Pulv. curcumæ	℥iv.
Pulv. fœnugreek	℥iv.
Pulv. zingib.	℥iv.
Ol. anisi	ʒiss.
Ol. caroph.	ʒiss.
Ol. carui	ʒiss.

Blister.

Spts. terebinth.	℥ii.
Acid. sulph.	ʒiii.
Adeps	℥vi.
Tereb. venet.	ʒiii.
Ol. origanum	ʒii.
Resin nig.	ʒiv.
Cera flav.	ʒiv.
Pulv. cantharides	ʒiss.
Pulv. euphorb.	℥i.

Wound Stone.

Ferri sulph.	2 lbs.
Alum sulph.	2 lbs.
Zinci sulph.	4 ozs.
Cupri sulph.	4 ozs.
Bole Armen., q.s. to colour.	

Put up in 2-oz. packets.

Gripe Drench.

Chloroform	℥iv.
Ol. pimento	ʒss.
Gum camphor	ʒss.
Pulv. opii	℥ss.
Rectified spt.	Oi.
Chillies	ʒi.

Macerate the opium and chillies in the spirit for seven days, filter, and mix the other ingredients.—Dose: ℥iss. with spt. æth. nit. ʒi. in warm gruel Oi.

Eye Lotion.

Zinci acetatis	ʒii.
Ext. hyoscyam.	ʒii.
S. v. rect.	℥iii.
Spt. camph.	℈i.
Aquæ, ad.	℥xxxvi.

Dispenser.—(1.) The difficulty of giving a formula for aq. camph. conc. lies in the variation of the actual strength of the officinal preparation. This, no doubt, varies in proportion to the surface of the camphor exposed. Squire estimates that 1 oz. of *aqua* is equal to ½ grain of the drug. The process ordered in the U.S. Pharmacopœia is reckoned to yield about 50 grains to the gallon, which would be nearly, though not quite, in the proportion you want, namely, 1 to 7. It is as follows:—Camphor, 120 grains; alcohol, 40 minims; carbonate of magnesia, ½ oz. (Troy); distilled water, 2 pints. Rub the camphor first with the alcohol, then with the magnesia, and lastly with the water; finally filter. (2.) Terebene is a substance produced by the action of sulphuric acid on turpentine. You will find some remarks on it in the report of the British Pharmaceutical Conference of 1875.

A Crystalline Coating for Paper or Wood.—Professor Böttger recommends the following recipe for this purpose:—Mix a concentrated cold solution of salt with dextrine, and lay the thinnest possible coating of the fluid on the surface to be covered by means of a broad, soft brush. After drying, the surface has a beautiful, bright mother-of-pearl coating, which, in consequence of the dextrine, adheres firmly to paper and wood. The coating may be made adhesive to glass by doing it over with an alcohol shellac solution. The following salts are mentioned as adapted to produce the most beautiful crystalline coating: sulphate of magnesia, acetate of soda, and sulphate of tin. Paper must first be sized, otherwise it will absorb the liquid and prevent the formation of crystals. Coloured glass thus prepared gives a good effect by transmitted light.

Bedfordshire.—(1). A good simple "oily hair wash" can be made by the following formula:—

	Ozs.
Bay rum	4
Glycerine	1
Olive oil	1

If not "oily" enough there is a very easy way out of that difficulty. (2). Squire says the following formula has been represented to him as that of chlorodyne, and he published it as:—

LIQUOR CHLOROFORMI COMPOSITUS.

Chloroform	4 ozs.
Ether	1 oz.
Rectified spirit	4 ozs.
Treacle	4 ozs.
Extract of liquorice	2½ ozs.
Muriate of morphia	8 grs.
Oil of peppermint	16 minims
Syrup	17½ ozs.
Prussic acid (2 per cent.)	2 ozs.

Dissolve the muriate of morphia and the oil of peppermint in the rectified spirit; mix the chloroform and ether with this solution; dissolve the extract of liquorice in the syrup, and add the treacle; shake these two solutions together, and add the prussic acid.

J. P. R.—1. "The Pharmacy Act of 1877" exists only in the imagination of the Walsall coroner. 2. The following have been added to Part I. of the Poison Schedule:—

Preparations of prussic acid.
Preparations of cyanide of potassium and of all metallic cyanides.
Preparations of strychnine.
Preparations of atropine.

And the following to Part II.:—

Preparations of prussic acid.
Preparations of cyanide of potassium and of all metallic cyanides.
Preparations of strychnine.
Preparations of atropine.
Preparations of corrosive sublimate.
Preparations of morphine.
Red oxide of mercury (commonly known as red precipitate of mercury).
Ammoniated mercury (commonly known as white precipitate of mercury).
Every compound containing any poison within the meaning of "The Pharmacy Act, 1868," when prepared or sold for the destruction of vermin.
The tincture and all vesicating liquid preparations of cantharides.

Chloral hydrate is now under consideration, and will probably soon find a place in Part II.

W. J.—Perhaps the "Manual of Colours and Dye Wares," by J. Slater, published by Lockwood at 7*s.* 6*d.*, would suit you. We do not know, however, that it contains what you would call "plain directions for use." Messrs. Judson's labels seem to us to meet your requirements in this respect.

Mastic for Fastening Indiarubber on Metals.—A mastic for fastening indiarubber on metals may be obtained by steeping gum-lac, in the form of pulverised scales, in ten times its weight of concentrated ammonia. A transparent mass is thus formed, which, at the end of three or four weeks, becomes fluid without the use of warm water. This substance, applied on indiarubber, becomes hard, and completely impervious to liquids and gases.

Trans.—(1.) The English diploma is accepted in the colony of Victoria, and you will certainly be none the worse for having it in the other Australian colonies, where no special license is required. We are informed that there is less demand for chemists' assistants in Australia than at home, but if you are disposed to turn your hand to anything you might get on there. So you might here. (2.) Your remarks on ointments are not good. It is always undesirable to apply heat to volatile substances unless for the special purpose of decomposing or subliming them. A very good ointment can be made of the ung. hydrarg. co. according to the Pharmacopœia directions if carefully manipulated. You say you "often" find it lumpy. If you "sometimes" find it smooth, it might occur to you that the fault lay in your workmanship. Surely you would not warm up the ointment when the camphor was in it.

Ignoramus (in our July issue) told us he had been threatened by an Excise officer with a prosecution for not stamping some dummy bottles of patent medicines exposed for sale in his window. At our suggestion our correspondent communicated with the Inland Revenue authorities, and received a reply to the effect that it is not necessary to stamp bottles not containing medicine or which are not to be sold.

Elastic Dammar Varnish for Photographs, &c.—An elastic flexible varnish for paper, which may be applied without previously sizing the article, may be prepared as follows:—Crush transparent and clear pieces of dammar into small grains; introduce a convenient quantity—say 40 grains—into a flask, pour on it about 6 ozs. of acetone, and expose the whole to a moderate temperature for about two weeks, frequently shaking. At the end of this time, pour off the clear saturated solution of dammar in acetone, and add, to every 4 parts of varnish, 4 parts of rather dense collodion; the two solutions are mixed by agitation, the resulting liquid allowed to settle, and preserved in well closed phials. This varnish is applied by means of a soft beaver hair pencil, in vertical lines. At the first application it will appear as if the surface of the paper were covered with a thin white skin. As soon, however, as the varnish has become dry, it presents a clear shining surface. It should be applied in two or three layers. This varnish retains its gloss under all conditions of weather, and remains elastic; the latter quality adapts it especially to topographical crayon drawings and maps, as well as to photographs.

J. W. H.—You cannot make good essence of rennet without time. We can give you no better formula than the one which appears in the Diary.

R. B.—We are not acquainted with any special "society which chemists' assistants can join, so that by paying in a sum of money yearly they are allowed so much a week or month in case of sickness or injury." Nor do we see the need of one. They can join any general friendly society, we presume.

G. E. B.—We believe dentists are pretty well agreed that no stopping for teeth equals pure gold. Amalgams are made with mercury and gold, or silver, or tin. To make it, gold (if that metal be employed) is heated in a crucible, and enough mercury added to render the amalgam of a doughy consistence at the temperature of boiling water. When cold, any excess of mercury can be pressed out in a piece of chamois leather. The amalgam is used hot after a little kneading in the hand.

Respecting a query in our July issue, we have received the following from New York, for the courtesy of which we are much obliged:—King's "American Dispensatory," an authority here on eclectic medicines, gives the following:—

TINCTURA PHYTOLACCÆ.

Tincture of Poke.

Recently dried poke root, finely powdered ..	3 troy ozs.
Diluted alcohol, sufficient, or	16 fluid ozs.

Form into a tincture by maceration or displacement, and make one pint (16 fluid ozs.) of tincture.

F. P.—We should refer you to those firms whose announcements of crushed linseed appear over the editorial notes of this journal.

J. S. B. asks for a formula for making a strong essence of horehound. Pereira recommends ½ oz. to the pint of water for an infusion; other authorities give double that strength—dose, 1 oz. to 2 ozs. A tincture might be made in the usual way by percolation. Proof spirit extracts the virtues of horehound. There is no recognised formula for essence of horehound.

We have to thank "Minor" (York), Mr. Duncan (Rothesay), Mr. McNicol (Alva), Mr. Hutchinson (Leith), Mr. R. Stenhouse (Edinburgh), and one or two anonymous correspondents for information about Christison's pills, asked for last month. The Pil. Coloc. c. Hyoscyam. of the B.P., cut in 2, 2½ or 3 grain pills, are sold under that name.

Mr. McNicol also gives the following formula for "Castor Oil Pills:"—

Pulv. jalapæ	ʒss.
Pulv. saponis	ʒss.
Pulv. zingiberis	ʒss.
Ol. ricini, ...	q. s.

Divide into 5-grain pills.

M. P.—We are often asked to recommend a medical dictionary. It is very difficult, without more definite information as to the requirements of our correspondents, to make a selection. There are, for instance, Tanner's Watson's, and Aitken's great works. There is Dr. Russell Reynolds' Dictionary, four volumes of which are published, and which is not yet complete. There is also Ziemssen's "Cyclopædia," appearing in parts, and which, when complete, will form perhaps the greatest compilation on medicine in existence. If we may *guess* as to our correspondent's desires, we should suppose that one of the following works would probably fulfil his requirements:—Aitken's "Outlines of the Science and Practice of Medicine" (12*s.* 6*d.*: C. Griffin & Co.); Harper's "Physician's Vade Mecum" (12*s.* 6*d.*: Churchill); Silver's "Practical Medicine" (12*s.* 6*d.*: Renshaw); or Dr. Warburton Begbie's "Medical Information" (2*s.* 6*d.*: Nelson). Further particulars of some of these appear in our advertisement pages.

To Remove Nitrate of Silver Stains.—The following method of removing indelible ink and other silver stains, without the use of cyanide of potassium, is given by Grimm in the *Polytechnisches Notizblatt*:—Chloride of copper is first applied to the tissue; it is next washed with hyposulphite of soda solution, and afterwards with water. It is said that this may be employed on coloured woven cotton tissues. For white cottons and linens, dilute solutions of permanganate of potash and hydrochloric acid, followed by the hyposulphite of soda and clear water is preferable. For cleaning the hands, we use iodine dissolved either in iodide of potassium or in alcohol, following by aqua ammonia.

B. B. writes:—"I notice amongst the various articles for which a license is required, that black, or spruce, beer is enumerated. As I have sold this article for more than thirteen years, and *without* license, I am at a loss to know why this is, and has been, allowed, and if the article, being English made, is allowed to be sold free of license. For my own safety, would you kindly say if there is any risk run in selling it?" We cannot find any official list of excise licenses which specifies "black beer" among the articles for the *dealing* in which a license is required. The Inland Revenue Board requires that *brewers* of black beer shall have a license if the quantity they brew *exceed* 20 gallons per annum. The brewer's license is from 10*s.* 6*d.* upwards, according to the quantity brewed. We do not, however, say that the sale of black beer is, therefore, free. That depends entirely on what is understood by black beer. If it is simply, as we believe it generally is, a sort of fermented ginger beer, the sale would not be interfered with; but a much stronger preparation might be, and we believe sometimes is, retailed under the title. Such might render the seller liable to the law as to selling ordinary beer. The best plan for our correspondent to adopt is to send a sample of the black beer sold by him to the Inland Revenue authorities at Somerset House, and ascertain from them whether it comes under the duties or not.

Engraving on Silver.—Cover the silver-plate with wax, engrave into the wax down to the metal, pour nitric acid on the plate, allow the acid to corrode the metal, wash off and remove the wax.

G. T. O.—If A. and B. are partners as chemists and druggists, both must be on the register. If A. is registered and B. is not, the latter has clearly represented himself to be what he is not, and has thus violated the Act.

Correspondents of the *American Druggists' Circular* give the following useful information in the Notes and Queries department of that paper:—

Salicylic Purple for Show Bottles.—C. W. Phillips (Cincinnati, O.) recommends the following as a beautiful, permanent and cheap purple for show bottles—

Salicylic acid..	1 grain
Alcohol	2 drachms
Tincture of chloride of iron	5 drops
Water	Sufficient

Dissolve the acid in the alcohol; to it add, first, the tincture, and then enough water to produce an appropriate colour.

To Clean Soda-Water Glasses.—Use whiting, not soap. It removes the milkiness of the glass and also the greasy appearance due to the essential oils. A delicate taste might detect soap, but not whiting. I never use soap. If a tumbler is very greasy—as happens after dispensing cream syrups, use sawdust first, and whiting afterwards.

H. B. A. (Jasper, N.Y.) recommends the following for making a paste that never moulds. Mix gum tragacanth with enough strong cider vinegar to cover it; and when the gum is softened, add sufficient of the same liquid to bring it to the requisite consistence. Our correspondent says he has been for the last three months using a bottle of mucilage thus prepared; it does not mould, and flies give it a wide berth. This, however, only partly fulfils the conditions of the querist, to whom, we presume, the recipe is offered as an answer. One of the qualities desired was *cheapness*, an advantage scarcely presented by gum tragacanth.

Permanent Emulsion of Cod Liver Oil.—A. B. (Auburndale, Mass.) recommends a formula which he has used for several years, and which, he is confident, gives an emulsion that will not separate if properly prepared. It is as follows:—

Yolks of eggs	2
White sugar	3 ounces.
Tincture of orange peel	4 drachms.
Rose water	12 drachms.
Oil of bitter almond	3 minims.
Cod liver oil, sufficient to complete	12 ounces.

Rosmarinus.—The leaves of the Rosemary yield the larger quantity of oil, but the flowers yield the finest quality. In all the *Labiatæ* the leaves yield very much more essential oil than the flowers, and, as a rule, are the only parts which pay for distillation.